



# भारत का राजपत्र

## The Gazette of India

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इस भाग में सिमन पृष्ठ संख्या दी जाती है जिससे कि यह अलग संकलन के रूप में रखा जा सके  
Separate paging is given to this Part in order that it may be filed as a separate compilation

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(रखा मंत्रालय को छोड़कर) भारत सरकार के मंत्रालयों और उच्चतम न्यायालय द्वारा जारी की गई विधितर नियमों, विनियमों तथा आदेशों और संकल्पों से सम्बन्धित अधिसूचनाएं

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## योजना आयोग

नई दिल्ली, दिनांक 19 दिसम्बर 1967

## संकल्प

सं० एफ०-1/67-आई० जे० सी०—योजना आयोग के दिनांक 7 नवम्बर, 1966 के संकल्प संख्या 25/65-आई० टी० डी० में आंशिक संशोधन करते हुए, यह निश्चय किया गया है कि श्री एम० वाई० काजी, भारत तथा जापान में आर्थिक विकास अध्ययन सम्बन्धी समिति के सचिव होंगे।

## आदेश

आदेश दिया जाता है कि इस संकल्प की एक प्रति सभी राज्य सरकारों, राज्यों के सभी मुख्य मन्त्रियों, भारत सरकार के सभी मंत्रालयों प्रधान मन्त्री सचिवालय, राष्ट्रपति के निजी तथा सैनिक सचिवों और भारत सरकार के विदेशों में स्थित सभी दूतावासों को भेज दी जाय।

यह भी आदेश दिया जाता है कि इस संकल्प को भारत सरकार के राजपत्र में प्रकाशित किया जाय।

ज्ञान चन्द बवेजा, संयुक्त सचिव

## इस्पात, खान तथा धातु मंत्रालय

## (खान तथा धातु विभाग)

नई दिल्ली, दिनांक 31 जनवरी, 1968

## संकल्प

सं० कोयला 2-8(7)/67—भारत सरकार के इस्पात, खान तथा धातु मंत्रालय (खान तथा धातु विभाग) संकल्प संख्या कोयला 2-8(7)/67 दिनांक 10 अक्टूबर 1967 की अनुवृत्ति में यह निर्णय किया गया है कि राष्ट्रीय कोयला विकास निगम समिति द्वारा अन्तिम रिपोर्ट प्रस्तुत करने का समय तीन माह और बढ़ा दिया जाय। तदनुसार समिति अपनी अन्तिम रिपोर्ट सरकार को 30 अप्रैल 1968 तक प्रस्तुत करेगी, न कि 31 जनवरी 1968 तक, जैसा कि पहले घोषित किया गया था।

एम० एस० के० रामास्वामी, उप-सचिव

स्वास्थ्य, परिवार नियोजन एवं नगर विकास मंत्रालय  
(स्वास्थ्य विभाग)

नई दिल्ली, दिनांक 22 जनवरी 1968

## संकल्प

विषय :—अस्पतालों के बारे में अध्ययन वर्ग—उसका गठन—

सं० 22/57/64-अस्पताल—अस्पतालों के बारे में अध्ययन वर्ग की अवधि को दिसम्बर 1967 के अन्त तक बढ़ाने सम्बन्धी संकल्प संख्या एफ० 22-57/64-अस्पताल-वोल्यूम-2, दिनांक 26 जुलाई 1967 में और आगे संशोधन करते हुए, भारत सरकार ने इस अध्ययन वर्ग की अवधि को फरवरी 1968 के अन्त तक और बढ़ाने का निर्णय कर दिया है। शेष अन्य नियन्धनों तथा शर्तों में कोई परिवर्तन नहीं किया गया है।

## आदेश

आदेश दिया जाता है कि इस संकल्प की एक-एक प्रति राष्ट्रपति के सचिव, प्रधान मंत्री सचिवालय, राज्य तथा लोक सभा सचिवालय, राज्य सरकारों, संघ क्षेत्रों, भारत सरकार के सभी मंत्रालय तथा विभागों, मंत्री मण्डल सचिवालय, भारत के नियंत्रक महालेखा परीक्षक और अध्ययन वर्ग के सभी सदस्यों को भेज दी जाये।

यह भी आदेश दिया जाता है कि इस संकल्प को सार्वजनिक सूचना के लिये भारत के राजपत्र में प्रकाशित कर दिया जाये।

र० न० मधोक, संयुक्त सचिव

## खाद्य, कृषि, सामुदायिक विकास तथा सहकारिता मंत्रालय

## (कृषि विभाग)

नई दिल्ली, दिनांक 27 जनवरी, 1968

## संकल्प

सं० 6-45/67-सामान्य—भारत सरकार ने निर्णय किया है कि निम्नलिखित व्यक्ति भी उस कृषि उत्पादन विषयक केन्द्रीय सलाहकार समिति का सदस्य होगा, जिसका गठन उनके इसी संख्या के 22 दिसम्बर, 1967 के अन्तर्गत किया गया है :—

1. मन्त्री, सिंचाई तथा विद्युत्

**आदेश**

आदेश दिया जाता है कि इस संकल्प की एक प्रति समिति के समस्त सदस्यों, भारत सरकार के समस्त मन्त्रालयों: विभागों, प्रधान मंत्री सचिवालय, राष्ट्रपति सचिवालय, योजना आयोग, मंत्रीमण्डल सचिवालय, भारत के नियंत्रक तथा महालेखा परीक्षक, समस्त राज्यों और संघ क्षेत्रों के कृषि सचिवों, खाद्य, कृषि, सामुदायिक विकास और सहकारिता (कृषि विभाग) के समस्त सम्बद्ध और अधीनस्थ कार्यालयों, लोक सभा सचिवालय, राज्य सभा सचिवालय, संसद् पुस्तकालय (5 प्रतियाँ) और समस्त राज्यों और संघ क्षेत्रों को भेज दिया जाये।

आदेश दिया जाता है कि यह संकल्प सामान्य सूचना के लिए भारत के राजपत्र में प्रकाशित किया जाये।

ब० शिवरामन, सचिव

नई दिल्ली, दिनांक 30 जनवरी 1968

सं० 26(1)/67-सी०डी०एन०(1)—भारतीय कृषि अनुसंधान परिषद् की नियमावली के नियम 75, जिसके साथ ही नियम 77 तथा 10 भी पढ़ा जाय, में की गई व्यवस्थाओं के अन्तर्गत निम्नलिखित व्यक्तियों को, जो कि दिनांक 22 अगस्त 1967 से भारतीय कृषि अनुसंधान परिषद् की कृषि अनुसंधान की स्थायी समिति के, जिसका गठन इस मन्त्रालय की अधिसूचना संख्या 26(1)/66-सी०डी०एन०-(1)—दिनांक 6 अगस्त 1966 के अन्तर्गत किया गया, उक्त नियमावली के नियम 77, जिसके साथ नियम 11 (ख) भी पढ़ा जाय, के अनुसार सदस्य नहीं रहे, अपनी सदस्यता की शेष अवधि के लिये अर्थात् 22 अगस्त 1967 से 21 जुलाई 1969 तक अथवा उस समिति में उनका उत्तराधिकारी नियुक्त किये जाने तक, इनमें से जो भी अवधि पहले समाप्त हो, स्थायी समिति का सदस्य पुनः मनोनीत किया गया :—

1. प्रो० ए० अन्नाहम, प्रोफेसर तथा विश्वविद्यालय के वनस्पति शास्त्र विभाग के अध्यक्ष एवं डीन, विज्ञान संकाय, केरल विश्वविद्यालय, त्रिवेन्द्रम।
2. डा० डब्ल्यू० डेविड, होपर, राँकफेलर फाउण्डेशन, नई दिल्ली।

पी० एस० हरिहरन, उप सचिव

**शिक्षा मंत्रालय**

नई दिल्ली, दिनांक 17 जनवरी, 1968

सं० एफ० 16-3/67 वाई० एस०-4—शिक्षा मंत्रालय की तारीख 13 नवम्बर, 1967 की अधिसूचना सं० एफ०-16-3/67 वाई० एस०-4 के सिलसिले में श्री पी० एल मेहता 18 कोटिलय मार्ग, बिप्लोमेटिक एनक्लेव, नई दिल्ली-11 को तुरन्त अभी से 16-8-68 तक श्री दिलीप बोस के स्थान पर खेलकूद की अखिल भारतीय परिषद् के प्रतिनिधि के रूप में "शारीरिक शिक्षा और खेलकूद के क्षेत्र में केन्द्रीय संस्थानों के प्रशासन के लिए समिति" के नियंत्रकों के बोर्ड का सदस्य नामजद किया गया है।

आर० एल० आनन्द, अवर सचिव

**रेल मंत्रालय****(रेलवे बोर्ड)****नियम**

नई दिल्ली, दिनांक 10 फरवरी 1968

सं० ई० (जी० आर०)-I-67-आर० आर०-2-1—निम्नलिखित सेवाओं में रिक्त स्थानों को भरने के लिये, संघ लोक सेवा आयोग द्वारा अगस्त/सितम्बर, 1968 में ली जाने वाली प्रतियोगिता परीक्षाओं के नियम सम्बन्धित मंत्रालयों/विभागों की सहमति से, आम जानकारी के लिये प्रकाशित किये जाते हैं।

- (1) इंजीनियरों की भारतीय रेल सेवा;
- (2) बिजली इंजीनियरों की भारतीय रेल सेवा;
- (3) सिगनल इंजीनियरों की भारतीय रेल सेवा;
- (4) यांत्रिक इंजीनियरों की भारतीय रेल सेवा;
- (5) केन्द्रीय इंजीनियरिंग सेवा, श्रेणी I;
- (6) केन्द्रीय इंजीनियरिंग सेवा श्रेणी II;
- (7) केन्द्रीय बिजली इंजीनियरिंग सेवा, श्रेणी I;
- (8) केन्द्रीय बिजली इंजीनियरिंग सेवा, श्रेणी II;
- (9) भारतीय पूति सेवा, श्रेणी I;
- (10) भारतीय निरीक्षण सेवा, श्रेणी I (इंजीनियरिंग शाखा);
- (11) सैनिक इंजीनियर सेवा श्रेणी I; (इमारत और सड़क संवर्ग);
- (12) सैनिक इंजीनियर सेवा, श्रेणी I; (बिजली और यांत्रिक संवर्ग);
- (13) टेलीग्राफ इंजीनियरिंग सेवा, श्रेणी I;
- (14) केन्द्रीय जल इंजीनियरिंग (श्रेणी I) सेवा; और
- (15) केन्द्रीय बिजली इंजीनियरिंग (श्रेणी I) सेवा।

परीक्षा-परिणामों के आधार पर भरी जानेवाली रिक्तियों की संख्या का उल्लेख आयोग द्वारा जारी की जानेवाली सूचना में किया जायेगा। अनुसूचित जातियों तथा अनुसूचित आदिम-जातियों के उम्मीदवारों के सम्बन्ध में रिक्तियों का आरक्षण भारत सरकार द्वारा नियत संख्या में किया जायेगा।

अनुसूचित जातियों/आदिम जातियों से अभिप्राय है कोई भी ऐसी जाति/आदिम जाति जिसका उल्लेख अनुसूचित जाति तथा अनुसूचित आदिम जाति आदेश (संशोधन) अधिनियम, 1956, संविधान (जम्मू और काश्मीर) अनुसूचित जाति आदेश, 1959, संविधान (अण्डमान और निकोबार द्वीप) अनुसूचित आदिम जाति आदेश, 1962, संविधान (दादरा और नागर हवेली) अनुसूचित जाति आदेश, 1962 संविधान (दादरा और नागर हवेली) अनुसूचित आदिम जाति आदेश, 1962, संविधान (पांडिचेरी), अनुसूचित जाति आदेश, 1964 और संविधान (अनुसूचित जातियाँ) (उत्तर प्रदेश), आदेश 1967 के साथ पठित अनुसूचित जाति/आदिम जाति सूची (आशोधन) आदेश, 1956 में किया गया है।

3. इन नियमों के अन्तर्गत परीक्षा आयोग द्वारा इन नियमों के परिशिष्ट I में निर्धारित ढंग से ली जायेगी।

परीक्षा-स्थल तथा परीक्षा की तारीखें आयोग द्वारा नियत की जायेंगी।

4. उम्मीदवार के लिये आवश्यक होगा कि वह या तो—

- (क) भारत का नागरिक हो, या
- (ख) सिक्किम की प्रजा हो, या
- (ग) नेपाल की प्रजा हो, या
- (घ) भूटान की प्रजा हो, या
- (ङ) तिब्बती शरणार्थी हो, जो भारत में स्थायी रूप से बसने के इरादे से, पहली जनवरी 1962 से पहले भारत आया हो,
- (च) वह व्यक्ति मूलतः भारतीय हो और भारत में स्थायी रूप से बसने के इरादे से पाकिस्तान, बर्मा, श्रीलंका और पूर्वी अफ्रीका के केन्या, उगान्दा तथा तेंजानिया के संयुक्त गणराज्य (भूतपूर्व तांगानिका और ज़न्जीबार) देशों से प्रव्रजन करके भारत आया हो;

परन्तु उपर्युक्त वर्ग (ग), (घ), (ङ), और (च) का उम्मीदवार वह व्यक्ति होगा जिसे भारत सरकार द्वारा पात्रता प्रमाण-पत्र दिया गया हो।

लेकिन निम्नलिखित में से किसी भी कोटि के उम्मीदवारों के मामले में पात्रता-प्रमाणपत्र की आवश्यकता न होगी :—

- (1) वे व्यक्ति, जो 19 जुलाई 1948 से पहले पाकिस्तान से प्रव्रजन करके भारत आये हों और तब से साधारणतः भारत में रह रहे हों;
- (2) वे व्यक्ति, जो 19 जुलाई 1948 को या उसके बाद पाकिस्तान से प्रव्रजन करके भारत आये हों और जिन्होंने संविधान के अनुच्छेद 6 के अधीन अपने को भारतीय नागरिक के रूप में रजिस्टर करा लिया हो;
- (3) उपर्युक्त कोटि (च) के नागरिकेतर व्यक्ति, जो संविधान लागू होने, अर्थात् 26 जनवरी 1950 से पहले भारत सरकार के अधीन सेवा में आ गये हों और तब से बिना व्यवधान के इस सेवा में चले आ रहे हों। लेकिन यदि ऐसा कोई व्यक्ति 26 जनवरी 1950 के बाद सेवा व्यवधान के पश्चात् फिर सेवा में आया हो या आये तो उसके लिये यथारिति पात्रता-प्रमाण-पत्र देना आवश्यक होगा।

जिस उम्मीदवार के मामले में पात्रता-प्रमाण-पत्र आवश्यक हो, उसे परीक्षा में बैठने दिया जा सकता है और अनन्तिम रूप में उसकी नियुक्ति भी की जा सकती है, बशर्ते कि सरकार उसे आवश्यक प्रमाण-पत्र दे।

5. (क) इस परीक्षा के उम्मीदवार के लिये आवश्यक है कि उसकी आयु 1 अगस्त 1968 को 20 वर्ष हो चुकी हो लेकिन 25 वर्ष न हुई हो, अर्थात् वह 2 अगस्त 1943 से पहले और 1 अगस्त 1948 के बाद पैदा न हुआ हो।

(ख) यदि निम्नलिखित कोटियों के सरकारी कर्मचारी, टेलीग्राफ इंजीनियरिंग सेवा, श्रेणी-I से भिन्न सेवाओं के लिये आवेदन करते हैं और यदि वे नीचे कालम 1 में उल्लिखित किसी भी प्राधिकारी के नियंत्रणाधीन विभाग/कार्यालय में नियुक्त हैं और कालम 2 में उल्लिखित तदनुसूची सेवा के लिये परीक्षा में प्रवेश के लिये आवेदन करते हैं, तो उनके मामले में 25 वर्ष की अधिकतम आयु-सीमा को छूट देकर 30 वर्ष किया जा सकेगा :—

- (1) वह उम्मीदवार, जो सम्बन्धित विभाग/कार्यालय विशेष में मूल रूप से किसी स्थायी पद पर हो। यह छूट किसी भी ऐसे परिवीक्षाधीन व्यक्ति को नहीं दी जायेगी जो अपने परिवीक्षा-काल में उस विभाग/कार्यालय में किसी स्थायी पद पर नियुक्त किया गया हो;
- (2) वह उम्मीदवार, जो 1 अगस्त 1968 को किसी विभाग/कार्यालय विशेष में कम से कम 3 वर्ष तक लगातार अस्थायी सेवा में रहा हो;
- (3) भारतीय रेलों के सिविल, बिजली, सिगनल और यांत्रिक इंजीनियरिंग तथा परिवहन (इंजन-शक्ति) विभागों में आयोग के माध्यम से भर्ती अस्थायी सहायक इंजीनियर भी यह रियायत पाने का पात्र होगा, चाहे विभाग में उसकी सेवा अवधि कितनी ही हो।

कालम 1	कालम 2
रेल विभाग	इ० भा० रे० से० बि० इ० भा० रे० से० सि० इ० भा० रे० से० या० इ० भा० रे० से०
केन्द्रीय लोक निर्माण विभाग	के० इ० से०, श्रेणी-I के० इ० से०, श्रेणी-II के० बि० इ० से०, श्रेणी-I के० बि० इ० से०, श्रेणी-II
पूति और निवटान महानिदेशालय	भा० पू० से०, श्रेणी-I भा० नि० से०, श्रेणी-I
इंजीनियर-प्रमुख, सेना मुख्यालय	से० इ० से०, श्रेणी-I (इ० और स० संवर्ग) से० इ० से०, श्रेणी-I (बि० और या० संवर्ग)
केन्द्रीय जल और बिजली आयोग	के० ज० इ० (श्रेणी-I) से० के० बि० इ० (श्रेणी-I) से०।

नोट :— यदि अप्रेंटिसी काल के ठीक बाद रेलों पर किसी कार्य-पद पर नियुक्ति हो जाये, तो आयु-सम्बन्धी रियायत के प्रयोजनार्थ अप्रेंटिसी काल को रेल सेवा माना जा सकता है।

(ग) टेजीग्राफ इंजीनियरिंग सेवा, श्रेणी-I के निम्नलिखित उम्मीदवारों के सम्बन्ध में भी 25 वर्ष की अधिकतम आयु-सीमा को छूट देकर 30 वर्ष किया जा सकेगा :—

(1) वह उम्मीदवार, जो डाक और तार विभाग में मूल रूप से किसी स्थायी पद पर हो। यह छूट किसी ऐसे परिबीक्षाधीन व्यक्ति को स्वीकार्य नहीं होगी, जो अपने परिबीक्षा काल में उस विभाग में किसी स्थायी पद पर नियुक्त किया गया हो;

(2) वह उम्मीदवार, जो 1 अगस्त 1968 को, डाक और तार विभाग के अधीन निम्नलिखित अस्थायी पदों में से किसी एक पर लगातार कम से कम दो वर्ष रह चुका हो :—

1. रिपीटर स्टेशन सहायक;
2. टेलीग्राफ कारखानों के फोरमैन या सहायक फोरमैन;
3. कारखानों के अस्थायी सहायक इंजीनियर;
4. इंजीनियरिंग पर्यवेक्षक; और
5. कारखाना पर्यवेक्षक।

परन्तु किसी भी उम्मीदवार को उपर्युक्त (ख) और (ग) में उल्लिखित अधिकतम आयु-सीमा की छूट के अन्तर्गत परीक्षा में तीन से अधिक बार बैठने की अनुमति नहीं दी जायेगी।

(घ) ऊपर निर्धारित अधिकतम आयु-सीमा में निम्नलिखित रूप से और छूट दी जा सकेगी :—

- (1) यदि उम्मीदवार अनुसूचित जाति या अनुसूचित आदिम जाति का हो तो अधिक से अधिक पांच वर्ष तक;
- (2) यदि उम्मीदवार पूर्वी पाकिस्तान से आया हुआ सदाशयी विस्थापित व्यक्ति हो और 1 जनवरी 1964 को या उसके बाद प्रव्रजन करके भारत आया हो तो अधिक से अधिक तीन वर्ष तक, लेकिन यह रियायत किसी ऐसे उम्मीदवार को स्वीकार्य नहीं होगी जो ऐसी पिछली पांच परीक्षाओं में बैठ चुका हो;
- (3) यदि उम्मीदवार अनुसूचित जाति या अनुसूचित आदिम जाति का हो और साथ ही पूर्वी पाकिस्तान से आया हुआ सदाशयी विस्थापित व्यक्ति हो और 1 जनवरी 1964 को या उसके बाद प्रव्रजन करके भारत आया हो, तो अधिक से अधिक आठ वर्ष तक। लेकिन यह रियायत किसी ऐसे उम्मीदवार को स्वीकार्य नहीं होगी जो ऐसी पिछली दस परीक्षाओं में बैठ चुका हो;
- (4) यदि उम्मीदवार पांडिचेरी के संघ-क्षेत्र का निवासी हो और उसने किसी समय फ्रेंच भाषा के माध्यम से शिक्षा पाई हो, तो अधिक से अधिक तीन वर्ष तक;

(5) यदि उम्मीदवार भारतीय मूल का, श्रीलंका से आया हुआ सदाशयी प्रत्यावर्ती हो और अक्तूबर 1964 के भारत-श्रीलंका करार के अधीन 1 नवम्बर 1964 को या इसके बाद प्रव्रजन करके भारत आया हो, तो अधिक से अधिक तीन वर्ष। लेकिन यह रियायत किसी ऐसे उम्मीदवार को स्वीकार्य नहीं होगी जो ऐसी पिछली पांच परीक्षाओं में बैठ चुका हो;

(5) यदि उम्मीदवार अनुसूचित जाति या अनुसूचित आदिम जाति का हो और साथ ही भारतीय मूल का, श्रीलंका से आया हुआ सदाशयी प्रत्यावर्ती हो तथा अक्तूबर 1964 के भारत-श्रीलंका करार के अधीन 1 नवम्बर 1964 को या इसके बाद प्रव्रजन करके भारत आया हो, तो अधिक से अधिक आठ वर्ष तक। लेकिन यह रियायत किसी ऐसे उम्मीदवार को स्वीकार्य नहीं होगी जो ऐसी पिछली दस परीक्षाओं में बैठ चुका हो;

(7) यदि उम्मीदवार गोआ, दमन और दिव के संघ-क्षेत्र का निवासी हो, तो अधिक से अधिक तीन वर्ष तक;

(8) यदि उम्मीदवार भारतीय मूल का हो और केन्या, उगान्दा और तंजानिया के संयुक्त गणराज्य (भूतपूर्व तांगानिका और जंजीबार) से प्रव्रजन करके भारत आया हो, तो अधिक से अधिक तीन वर्ष तक;

(9) यदि उम्मीदवार भारतीय मूल का बर्मा से आया हुआ सदाशयी प्रत्यावर्ती हो और 1 जून 1963 को या इसके बाद प्रव्रजन करके भारत आया हो, तो अधिक से अधिक तीन वर्ष तक। लेकिन यह रियायत किसी ऐसे उम्मीदवार को स्वीकार्य नहीं होगी जो ऐसी पिछली पांच परीक्षाओं में बैठ चुका हो;

(10) यदि उम्मीदवार अनुसूचित जाति या अनुसूचित आदिम जाति का हो और साथ ही भारतीय मूल का बर्मा से आया हुआ सदाशयी प्रत्यावर्ती हो तथा 1 जून 1963 को या इसके बाद प्रव्रजन करके भारत आया हो, तो अधिक से अधिक आठ वर्ष तक। लेकिन यह रियायत किसी ऐसे उम्मीदवार को स्वीकार्य नहीं होगी जो ऐसी पिछली दस परीक्षाओं में बैठ चुका हो;

(11) किसी अन्य देश के साथ युद्ध के दौरान या उपद्रवग्रस्त क्षेत्र में अपाहिज हो जाने के फल-स्वरूप मुक्त हुए सैनिक कर्मचारियों के मामले में अधिक से अधिक तीन वर्ष तक। लेकिन यह रियायत किसी ऐसे उम्मीदवार को स्वीकार्य

नहीं होनी जो ऐसी पिछली पांच परीक्षाओं में बैठ चुका हो; और

- (12) किसी अन्य देश के साथ युद्ध के दौरान या उपद्रवग्रस्त क्षेत्र में अपाहिज हो जाने के फल-स्वरूप मुक्त हुए अनुसूचित जाति या अनुसूचित आदिम जाति के सैनिक कर्मचारियों के मामले में अधिक से अधिक आठ वर्ष तक। लेकिन यह रियायत किसी ऐसे उम्मीदवार को स्वीकार्य नहीं होगी जो ऐसी पिछली दस परीक्षाओं में बैठ चुका हो।

ध्यान दीजिए :—

- (1) यदि उम्मीदवार किसी एक या अधिक सेवाओं/पदों के लिये परीक्षा में बैठता है, तो इस नियम के प्रयोजनों के लिये ऐसा समझा जायेगा कि वह साधारणतः ऐसी परीक्षा के अन्तर्गत आनेवाली सभी सेवाओं/पदों के लिये एक बार परीक्षा में बैठ चुका है।

यदि उम्मीदवार किसी एक या अधिक विषयों में वस्तुतः परीक्षा देता है तो उसके बारे में यह समझा जायेगा कि वह परीक्षा में बैठ चुका है।

ध्यान दीजिये :—

- (2) उपर्युक्त नियम 5(ख) या 5(ग) में उल्लिखित आयु की रियायत के अन्तर्गत परीक्षा में प्रवेश पाने वाला व्यक्ति, यदि अपना आवेदन पत्र देने के बाद, परीक्षा देने से पहले या बाद में नौकरी से इस्तीफा दे देता है या उसके विभाग/कार्यालय द्वारा उसकी सेवाएं समाप्त कर दी जाती हैं, तो ऐसे व्यक्ति की उम्मीदवारी समाप्त की जा सकती है। लेकिन यदि आवेदन-पत्र देने के बाद उस व्यक्ति की सेवा या पद से छंटनी कर दी जाती है तो वह परीक्षा में बैठने का पात्र बना रहेगा।

यदि कोई उम्मीदवार, अपने विभाग को प्रार्थना-पत्र देने के बाद, अन्य विभाग/कार्यालय को स्थानान्तरित कर दिया जाता है, तो वह आयु सम्बन्धी विभागीय रियायतों के अन्तर्गत उस सेवा के लिये प्रतियोगिता में भाग लेने का पात्र होगा जिसके लिये वह स्थानान्तरण न होने की स्थिति में होता, लेकिन शर्त यह है कि उसका प्रार्थना-पत्र उसके मूल विभाग द्वारा अंग्रेषित किया गया हो।

उपर्युक्त उपबन्धों के अतिरिक्त किसी भी हालत में निर्धारित आयु-सीमाओं में छूट नहीं दी जायेगी।

6. उम्मीदवार के लिये आवश्यक है कि :

- (क) उसने केन्द्रीय या राज्य विधान सभा के किसी अधिनियम द्वारा भारत में निगमित विश्वविद्यालय, या संसद के किसी अधिनियम द्वारा स्थापित या विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 की धारा 3 के अन्तर्गत विश्वविद्यालयों की तरह मान्य घोषित किसी अन्य शिक्षा संस्था से इंजीनियरिंग की उपाधि प्राप्त की हो, अथवा

(ख) उसने इंजीनियरों की संस्था (भारत) की सम्बद्ध सदस्यता (एसोशिएट मेम्बरशिप) परीक्षा के 'ए' और 'बी' खंडों को पास किया हो; और

(ग) उसने ऐसे विदेशी विश्वविद्यालयों/कालेजों/संस्थाओं से और ऐसी शर्तों के अधीन इंजीनियरिंग की उपाधि/डिप्लोमा प्राप्त किया हो जिन्हें इसके प्रयोजनार्थ समय-समय पर सरकार से मान्यता मिली हो।

परन्तु बिजली इंजीनियरों की भारतीय रेल सेवा, सिगनल इंजीनियरों की भारतीय रेल सेवा, यांत्रिक इंजीनियरों की भारतीय रेल सेवा, टेलीग्राफ इंजीनियरिंग सेवा, श्रेणी I, केन्द्रीय बिजली इंजीनियरिंग सेवाएं, श्रेणी I, और श्रेणी II, सैनिक इंजीनियरिंग सेवा, श्रेणी I (बिजली और यांत्रिक संवर्ग), केन्द्रीय जल इंजीनियरिंग (श्रेणी I) सेवा (यांत्रिक इंजीनियरिंग पद) और केन्द्रीय बिजली इंजीनियरिंग (श्रेणी I) सेवा के उम्मीदवार उपर्युक्त अथवा निम्नलिखित अर्हताओं में से कोई एक अर्हता-प्राप्त व्यक्ति हो सकते हैं, अर्थात् :—

(क) उसने दूर-संचार इंजीनियरों की संस्था (भारत) की स्नातक सदस्यता परीक्षा पास की हो; अथवा

(ख) उसने नवम्बर 1959 के बाद ली गई, इलेक्ट्रानिक्स और रेडियो इंजीनियरों की संस्था, लन्दन से स्नातक सदस्यता परीक्षा पास की हो।

इलेक्ट्रानिक्स और रेडियो इंजीनियरों की संस्था, लन्दन, की नवम्बर 1959 से पहले ली गई स्नातक सदस्यता परीक्षा भी मान्य होगी, बशर्ते,

- (1) नवम्बर 1959 से पहले ली गई परीक्षा पास करने वाले उम्मीदवारों ने निम्नलिखित अतिरिक्त विषयों में परीक्षा दी और पास की हो :—

(1) बिजली इंजीनियरिंग के सिद्धान्त और अनुप्रयोग (1959 के बाद की योजना के खण्ड 'ए' में निर्धारित पाठ्यक्रम के अनुसार);

(2) गणित II (1959 के बाद की योजना के खण्ड 'बी' में निर्धारित पाठ्यक्रम के अनुसार)।

- (2) सम्बन्धित उम्मीदवार उपर्युक्त (1) में निर्धारित शर्तें पूरी करता है, इसके प्रमाणस्वरूप वह इलेक्ट्रानिक्स और रेडियो इंजीनियरों की संस्था, लन्दन का प्रमाण पत्र प्रस्तुत करे।

नोट 1 :—कोई ऐसा उम्मीदवार जो किसी ऐसी परीक्षा में बैठ चुका है जिसे पास करने से वह इस परीक्षा में बैठने का पात्र बनता है लेकिन जिसके परीक्षा फल की सूचना उसे नहीं मिली है, इस परीक्षा में प्रवेश के लिये आवेदन पत्र दे सकता है। यदि कोई उम्मीदवार किसी ऐसी अर्हक परीक्षा में बैठना चाहता है तो वह भी आवेदन-पत्र दे सकता है, लेकिन शर्त यह है कि अर्हक परीक्षा इस परीक्षा के प्रारम्भ होने से पहले समाप्त हो जाये।

ऐसे उम्मीदवार को, यदि वह अन्यथा पात्र हो, तो परीक्षा में प्रवेश मिल जायेगा, लेकिन उसके प्रवेश को अन्तिम सम्भावना जायेगा और यदि वह उस परीक्षा को पास करने का प्रमाण यथासम्भव प्रीघ्र, और किसी भी हालत में इस परीक्षा के प्रारम्भ होने से दो महीने के भीतर पेश नहीं करता, तो उसके प्रवेश को रद्द कर दिया जायेगा।

नोट 2 :—आपवादिक मामलों में, आयोग किसी ऐसे उम्मीदवार जिसके पास इस नियम में निर्धारित कोई अर्हता न हो, शिक्षा की दृष्टि से अर्ह सम्भव सकता है, बशर्ते उसने अन्य संस्थाओं द्वारा ली जानेवाली ऐसी परीक्षाएं पास की हों जिनका स्तर आयोग की राय में परीक्षा में उसके प्रवेश को औचित्य प्रदान करनेवाला हो।

नोट 3 :—वह उम्मीदवार भी जो अन्यथा अर्ह हो, लेकिन जिसने किसी ऐसे विषयविद्यालय से उपाधि प्राप्त की हो, जो सरकार द्वारा मान्य न हो, आयोग को आवेदन-पत्र भेज सकता है और आयोग के विवेक पर उसे परीक्षा में प्रवेश दिया जा सकता है।

7. उम्मीदवार के लिये आवश्यक होगा कि वह आयोग की सूचना के अनुबन्ध I में विनिर्दिष्ट फीस दे।

8. सरकारी सेवा में स्थायी या अस्थायी हैसियत से काम करनेवाले उम्मीदवार के लिये आवश्यक होगा कि वह परीक्षा में बैठने के लिये अपने विभागाध्यक्ष से पुर्वानुमति प्राप्त करे।

9. परीक्षा में प्रवेश के लिये कोई उम्मीदवार पात्र है या नहीं, इस सम्बन्ध में आयोग का निर्णय अन्तिम होगा।

10. जब तक किसी उम्मीदवार के पास आयोग से प्राप्त प्रवेश प्रमाण-पत्र नहीं होगा, तब तक उसे परीक्षा में नहीं बैठने दिया जायेगा।

11. अपनी उम्मीदवारी के लिये किसी उम्मीदवार द्वारा किसी भी साधन से किया गया कोई प्रयास उसे प्रवेश के लिये अनर्ह बना सकता है।

12. यदि आयोग द्वारा कोई उम्मीदवार प्रतिरूपण करने, या जाली दस्तावेज पेश करने, या दस्तावेजों में काट-छांट करने, या गलत या झूठे बयान देने, या महत्वपूर्ण सूचना दबा लेने, या परीक्षा में प्रवेश पाने के लिये अन्य अनियमित अथवा अनुचित साधनों का सहारा लेने, या परीक्षा भवन में गलत साधनों का प्रयोग करने या उनके प्रयोग की चेष्टा करने, या परीक्षा भवन में दुर्व्यवहार करने का दोषी हो या आयोग द्वारा दोषी घोषित किया गया हो, तो उसके विरुद्ध अदालती कार्रवाई करने के अलावा उसे निम्नलिखित सजा दी जा सकती है :—

(क) उसे स्थायी रूप से या विशिष्ट अवधि के लिये—

(1) आयोग द्वारा उम्मीदवारों का चयन करने के लिये आयोग की परीक्षा में प्रवेश या साक्षात्कार में उपस्थित होने से;

(2) सरकार द्वारा अपने नियोजन से, वारित किया जा सकता है।

(ख) यदि वह पहले से ही सरकारी सेवा में हो, तो उपयुक्त नियमों के अन्तर्गत उसके विरुद्ध अनुशासन की कार्यवाही की जा सकती है।

13. जो उम्मीदवार लिखित परीक्षा में, उतने न्यूनतम अर्हक अंक प्राप्त कर लेते हैं, जितने आयोग स्वविवेक से निर्धारित करे, उन्हें आयोग व्यक्तिगत परीक्षा हेतु साक्षात्कार के लिये बुलायेगा।

14. परीक्षा के बाद आयोग हर उम्मीदवार को अन्तिम रूप से दिये गये कुल अंकों के अनुसार योग्यता के आधार पर उम्मीदवारों की एक सूची बनायेगा और उसी क्रम से उन उम्मीदवारों को, जिन्हें आयोग परीक्षा में अर्ह समझे उतनी अनारक्षित रिक्तियों पर नियुक्ति के लिये सिफारिश की जायेगी जितनी परीक्षा के परिणाम के आधार पर भरने का निर्णय किया गया हो।

परन्तु यदि अनुसूचित जाति या अनुसूचित आदिम जाति का कोई उम्मीदवार, जो यद्यपि आयोग द्वारा निर्धारित स्तर से किसी भी सेवा के लिये अर्ह न हो, प्रशासन की कार्य-कुशलता का यथोचित ध्यान रखते हुए, उसके द्वारा नियुक्ति के लिये उपयुक्त घोषित किया गया हो, तो उस सेवा में उसकी, अनुसूचित जातियों और अनुसूचित आदिम जातियों के सदस्यों के लिये आरक्षित रिक्तियों, जैसी स्थिति हो, पर नियुक्ति के लिये सिफारिश की जायेगी।

15. प्रत्येक उम्मीदवार को परीक्षाफल किस रूप में और किस ढंग से भेजा जाये, इस बात का निर्णय आयोग स्वविवेक से करेगा और परिणाम के सम्बन्ध में आयोग उम्मीदवारों से कोई पत्र-व्यवहार नहीं करेगा।

16. आवेदन करते समय उम्मीदवार ने जिन सेवाओं को तरजीह दी हो उनका यथोचित ध्यान रखा जायेगा, लेकिन भारत सरकार को यह अधिकार रहेगा कि वह उसे जिस सेवा/पद के लिये वह उम्मीदवार है, उसमें किसी भी सेवा/पद पर लगा सके।

17. परीक्षा में सफल होने से तब तक नियुक्ति का अधिकार नहीं मिल जाता, जब तक कि सरकार आवश्यक जांच-पड़ताल के बाद इस बात से सन्तुष्ट न हो जाये कि उम्मीदवार सरकारी सेवा में नियुक्ति के लिये सर्वथा उपयुक्त है।

18. उम्मीदवार के लिये आवश्यक है कि वह मानसिक और शारीरिक दृष्टि से पूर्णतया स्वस्थ हो और उसमें कोई ऐसा शारीरिक दोष न हो जिसके कारण सेवा में अधिकारी के नाते उसके कर्तव्य पालन में बाधा पड़ने की सम्भावना हो। जो उम्मीदवार (ऐसी शारीरिक परीक्षा के बाद जैसी कि सरकार या नियुक्ति करनेवाला प्राधिकारी, जैसी स्थिति हो, विनिर्दिष्ट करें) इन आवश्यक बातों को पूरा नहीं करता, उसे नियुक्त नहीं किया जायेगा। व्यक्तिगत परीक्षा के लिये अर्ह घोषित किये गये सभी उम्मीदवारों की उसी जगह शारीरिक परीक्षा ली जायेगी जहाँ कि उन्हें साक्षात्कार के लिये बुलाया गया हो। शारीरिक परीक्षा साक्षात्कार के तुरन्त पहले या बाद में ली जायेगी। उम्मीदवारों को चिकित्सा-मण्डल को 16 रुपये फीस देनी होगी। किसी उम्मीदवार की शारीरिक परीक्षा लेने का अर्थ यह नहीं होगा कि उक्त उम्मीदवार नियुक्ति के लिये विचारणीय है।



उम्मीदवारों को किसी प्रकार की निराशा न हो, इसके लिये उन्हें सलाह दी जाती है कि परीक्षा में प्रवेश के लिये आवेदन करने से पहले वे सिविल सर्जन के स्तर के किसी सरकारी चिकित्सा अधिकारी से अपनी परीक्षा करा लें। नियुक्ति से पहले उम्मीदवारों की किस प्रकार की डाक्टरी परीक्षा होगी और उसमें उनसे किस स्तर की अपेक्षा की जायेगी, इसका मीरा परिशिष्ट II में दिया गया है। अपाहिज भूतपूर्व सैनिक कर्मचारियों के सम्बन्ध में, प्रत्येक सेवा की आवश्यकताओं को ध्यान में रखते हुए, इन स्तरों में छूट दी जायेगी।

19. (क) कोई भी पुरुष उम्मीदवार जिसकी एक से अधिक पत्नियां जीवित हों, या जो एक भार्या के जीवित रहते विवाह करता है जो उस भार्या के जीवनकाल में सम्पन्न होने के कारण शून्य हो, ऐसी किसी सेवा में, जिसमें इस प्रतियोगिता परीक्षा के परिणामों के आधार पर नियुक्तियां की जाती हैं, नियुक्ति के लिये तब तक पात्र नहीं होगा जब तक कि भारत सरकार इस बात से सन्तुष्ट होकर कि उसके ऐसा करने के विशेष कारण हैं, उस पुरुष उम्मीदवार को, इस नियम के प्रवर्तन से छूट न दे दे।

(ख) कोई भी महिला उम्मीदवार जिसका विवाह इस कारण शून्य हो कि विवाह के समय पति की एक पत्नी जीवित हो या जिसने ऐसे व्यक्ति से विवाह किया हो जिसकी एक पत्नी ऐसे विवाह के समय जीवित हो, ऐसी किसी सेवा में, जिसमें इस प्रतियोगिता परीक्षा के परिणामों के आधार पर नियुक्तियां की जाती हैं, नियुक्ति के लिये तब तक पात्र नहीं होगी जब तक कि भारत सरकार इस बात से सन्तुष्ट होकर कि उसके ऐसा करने के विशेष कारण हैं, उस महिला उम्मीदवार को इस नियम के प्रवर्तन से छूट न दे दे।

20. जिन सेवाओं/पदों के लिये इस परीक्षा के माध्यम से भर्ती की जा रही है, उन का संक्षिप्त विवरण परिशिष्ट III में दिया गया है।

सी० एस० परमेश्वरन, सचिव रेलवे बोर्ड

#### सिचार्ड व बिजली मंत्रालय

नई दिल्ली, दिनांक 31 जनवरी 1968

#### संकल्प

सं० ई० एल०-दो-12(21)/61/जिल्द-3—दिल्ली ताप बिजली परियोजना के संस्थापन से संबंधित मंत्रालय के संकल्प सं० ई० एल०

#### PLANNING COMMISSION

#### RESOLUTION

New Delhi, the 19th December 1967

No. F. VI-1/67-IJC.—In partial modification of the Planning Commission's Resolution No. 25/65-ITD, dated 7th November, 1966, it has been decided that Shri M. Y. Kazi will be the Secretary of the Committee for Studies on Economic Development in India and Japan.

#### ORDER

ORDERED that a copy of this Resolution be communicated to all State Government, all Chief Ministers of States, all Ministries of the Govt. of India, the Prime Minister's Secretariat, the Cabinet Secretariat, the Private and Military Sec-

दो-12(21)/61, दिनांक 26 दिसम्बर, 1962 में जिस का संशोधन संकल्प सं० ई० एल०-दो-12(21)/61, दिनांक 4 अक्टूबर, 1967 द्वारा किया गया था, पैरा 2 के नाँवे निम्नलिखित मद को मद संख्या 2 के रूप में जोड़ दिया जाए और 2 से 13 की वर्तमान मदों का 3 से 14 तक क्रमशः पुनः संख्यांकन किया जाए :—

"2. सिचार्ड व बिजली उपमन्त्री... सदस्य

#### आदेश

आदेश दिया जाता है कि इस संकल्प को पंजाब सरकार, दिल्ली प्रशासन, दिल्ली नगर निगम, पंजाब राज्य बिजली बोर्ड, भारत सरकार के मंत्रालयों, प्रधान मंत्री सचिवालय, राष्ट्रपति के सचिव, योजना आयोग, भारत के नियंत्रक तथा महालेखा परीक्षक के पास भेज दिया जाए।

यह आदेश भी दिया जाता है कि इस संकल्प को भारत के राजपत्र में प्रकाशित कर दिया जाए।

के० पी० मन्थानी, सचिव

#### श्रम, रोजगार और पुनर्वास मन्त्रालय

#### श्रम और रोजगार विभाग

नई दिल्ली, दिनांक 29 जनवरी 1968

सं० डब्ल्यू० ई० 4/1/36/66—11 नवम्बर, 1967/कार्तिक 20, 1889 के भारतीय राजपत्र के भाग I, खण्ड 1 में प्रकाशित अधिसूचना संख्या डब्ल्यू० ई० 4-1-36/66-तारीख 27 अक्टूबर, 1967 के पैरा 2 में निर्दिष्ट प्रविष्टि :—

"5. श्री एन० के० जोशी,  
श्रम सलाहकार व उप-सचिव,  
राजस्थान सरकार,  
श्रम और रोजगार विभाग, जयपुर"

के स्थान पर निम्नलिखित को रखा जाये :—

5. "श्री एन० के० जोशी,  
श्रमायुक्त व पदेन उप-सचिव,  
राजस्थान सरकार,  
श्रम विभाग, राजस्थान,  
जयपुर"

हंस राज छाबड़ा, अधर सचिव

retaries to the President and heads of all Indian Missions abroad.

ORDERED also that a copy be published in the Gazette of India.

G. C. BAVEJA, Jt. Secy.

#### DEPARTMENT OF SOCIAL WELFARE

New Delhi, the 10th January 1968

#### RESOLUTION

No. F. 6-1/67-SW.1.—The Government of India, Ministry of Education vide resolution No. F. 1-34/55-D.2 dated 1-9-55 appointed a permanent advisory body to be known as the National Advisory Council for the Education of the Handi-

capped to advise the Government of India on all problems concerning the education and welfare of the physically and mentally handicapped and to assist in the formulation of new schemes for the purpose. This Council was last reconstituted vide the Ministry of Education resolution No. F. 6-2/61-SW.7 dated the 7th September, 1962.

2. It has now been decided to reconstitute the Council consisting of the following :—

*Chairman*

- (1) Minister of State for Social Welfare.

*Members*

- (2) Commissioner (Social Welfare), Department of Social Welfare.  
 (3) Deputy Secretary incharge of the Social Welfare Division, Department of Social Welfare.  
 (4—9) A representative each of the Ministries of Health, Family Planning & Urban Development, Finance, Labour, Employment & Rehabilitation, Education, Defence and the Planning Commission.  
 (10—26) A representative each of the 17 State Governments.  
 (27) A representative of the Union Territories.  
 (28—31) An expert each in the field of education, training and rehabilitation of the blind, the deaf, the orthopaedically handicapped and the mentally retarded.  
 (32—35) A medical expert each in the field of ophthalmology, otolaryngology, Orthopaedic surgery and psychiatry.

*Member-Secretary*

- (36) Education Officer (Handicapped), Department of Social Welfare.

3. The following are the terms of reference of the Council :—

(i) To advise the Government of India on all problems concerning the education, training and rehabilitation of the blind, the deaf, the orthopaedically handicapped and the mentally retarded.

(ii) To advise on the formulation of new schemes.

(iii) To serve as a liaison between the Government of India, State Governments and voluntary organisations working in the field.

4. The Chairman and Secretary as well as the members of the Council shall be nominated by the Government of India. The Chairman and the Secretary shall hold office during the pleasure of the nominating authority and all the other members will be appointed for such periods as may be notified from time to time.

**ORDER**

ORDERED that a copy of this Resolution be communicated to all the members of the Council, all the Ministries of the Government of India, the Planning Commission, the Cabinet Secretariat, the Prime Minister's Secretariat, the Lok Sabha Secretariat, the Rajya Sabha Secretariat, the Department of Parliamentary Affairs, the Central Social Welfare Board and the Education/Social Welfare Departments of all the State Governments.

ORDERED also that the Resolution be published in the Gazette of India for general information.

KAILASH CHANDRA, Commissioner  
(Social Welfare)

**MINISTRY OF FINANCE**

(Department of Economic Affairs)

New Delhi, the 1st February 1968

No. F. 4(43)BC/67.—In pursuance of the Resolution of December 22, 1967 published in the Gazette of India Extraordinary Part I, Section 1, dated December 23, 1967, the

Government of India hereby constitutes the National Credit Council with the following members :

*Chairman*

1. Deputy Prime Minister and Minister of Finance.

*Vice-Chairman*

2. Governor, Reserve Bank of India.  
 3. Deputy Chairman, Planning Commission.  
 4. Special Secretary, Ministry of Finance, Department of Economic Affairs.  
 5. Chairman, Agricultural Refinance Corporation.  
 6. Shri P. C. Barooah.  
 7. Shri C. H. Bhabha.  
 8. Shri K. T. Chandy.  
 9. Shri V. T. Dehejia.  
 10. Shri P. N. Dhar.  
 11. Shri B. K. Dutt.  
 12. Shri M. Y. Ghorpade.  
 13. Shri A. K. Kader Kutty.  
 14. Dr. P. S. Lokanathan.  
 15. Shri E. K. Madhavan.  
 16. Shri Arvind Mafatlal.  
 17. Shri B. Mazumdar.  
 18. Shri Biren Mookerji.  
 19. Shri R. R. Morarka.  
 20. Shri T. S. Narayanaswami.  
 21. Dr. P. Natesan.  
 22. Shri T. A. Pal.  
 23. Shri Maganbhai R. Patel.  
 24. Major H. S. Sandhu.  
 25. Shri M. Somappa

The Council constituted as above will have a term of three years.

S. S. SHIRALKAR, Addl. Secy.

New Delhi, the 2nd February 1968

**CORRIGENDUM**

SUB.—Design for FAO-sponsored Commemorative Coin 1968.

No. F. 1/1/67-Coin.—For the word and figures "March 1, 1968" appearing in this Ministry's Notice dated the 23rd January, 1968, published in Gazette Notification No. F. 1/1/67-Coin dated the 23rd January 1968 substitute the word and figures "March 25, 1968".

M. K. VENKATARAMAN, Under Secy.

**MINISTRY OF STEEL, MINES AND METALS**

(Department of Mines and Metals)

New Delhi, the 31st January 1968

**RESOLUTION**

No. C2-8(7)/67.—In continuation of the Government of India in the Ministry of Steel, Mines and Metals (Department of Mines and Metals) Resolution No. C2-8(7)/67, dated 10th October, 1967, it has been decided to extend by another three months the period for submission of the final Report of National Coal Development Corporation Committee. The Committee will accordingly present its final report to the Government by 30th April 1968, instead of the 31st January, 1968 as announced earlier.

**ORDER**

ORDERED that a copy of this Resolution be communicated to all State Governments, Administrators of Union Territories, all Ministries of the Govt. of India, President's Secretariat, Cabinet Secretariat, P.M.'s Secretariat, Planning Commission, C. & A.G. of India, A.G., Commerce, Works and Miscellaneous, Lok Sabha Secretariat, Rajya Sabha Secretariat, Managing Director, National Coal Development Corporation Ltd., Ranchi and All Directors of N.C.D.C.

ORDERED also that a copy of the Resolution be published in the Gazette of India for general information.

M. S. K. RAMASWAMI, Dy. Secy.

**MINISTRY OF FOOD, AGRICULTURE, COMMUNITY DEVELOPMENT AND COOPERATION****(Department of Agriculture)***New Delhi, the 27th January 1968***RESOLUTION**

No. 6-45/67-Genl.II.—The Government of India have decided that the following person will also be member of the Central Advisory Committee for Agricultural Production constituted under their Resolution of even number dated the 22nd December, 1967 :

1. Minister of Irrigation & Power.

**ORDER**

ORDERED that a copy of the Resolution be forwarded to all Members of the Committee, all Ministries/Departments of the Government of India, the Prime Minister's Secretariat, the President's Secretariat, Planning Commission, Cabinet Secretariat, Comptroller & Auditor General of India, Agriculture Secretaries in all States and Union Territories, all Attached and Subordinate offices of the Ministry of F&CD&C (Department of Agriculture), the Lok Sabha Secretariat, the Rajya Sabha Secretariat, Parliament Library (5 copies) and all State Governments and Union Territories.

ORDERED also that the Resolution be published in the Gazette of India for general information.

B. SIVARAMAN, Secy.

**(I.C.A.R.)***New Delhi, the 30th January 1968*

No. 26(1)/67-CDN(I).—Under the provisions of Rule 75 read with Rules 77 and 10 of the Rules of the Indian Council of Agricultural Research, the following persons, who under Rule 77 read with Rule 11(b) of those Rules, ceased with effect from 22nd August, 1967 to be members of the Standing Committee for Agricultural Research of the Indian Council of Agricultural Research as constituted under this Ministry's Notification No. 26(1)/66-CDN(I), dated the 6th August, 1966 have been renominated on the said Standing Committee for the unexpired portion of their term of membership viz. from the 22nd August, 1967 to the 21st July, 1969, or till such time as their successors are nominated on that Committee, whichever period expires earlier :—

1. Prof. A. Abraham, Professor and Head of the University Department of Botany and Dean, Faculty of Science, University of Kerala, Trivandrum.
2. Dr. W. David Hopper, The Rockefeller Foundation, New Delhi.

P. S. HARIHARAN, Dy. Secy.

**MINISTRY OF HEALTH, FAMILY PLANNING AND URBAN DEVELOPMENT***New Delhi, the 22nd January 1968***RESOLUTION**

SUBJECTS :—Study Group on Hospitals—Setting up of.

No. F. 22-57/64-H.—In further modification of the Resolution No. F. 22-57/64-H.Vol.II dated the 26th July, 1967 extending the duration of the Study Group on Hospitals till the end of December, 1967, the Government of India have decided to further extend the duration of the Study Group up to the end of February, 1968. Other terms and conditions remain unchanged.

**ORDER**

ORDERED that a copy of the Resolution be communicated to the Secretary to the President, Prime Minister's Secretariat, Rajya Sabha Secretariat/Lok Sabha Secretariat/State Governments/Union Territories/Ministries/Department of Government of India/Cabinet Secretariat/The Comptroller and

Auditor General of India and members of the Study Group/D.G.H.S.(C.G.H.S.).

ORDERED also that the Resolution be published in the Gazette of India for general information.

**(Department of Health)***The 24th January 1968***RESOLUTION**

No. F. 16-16/66-MPT.—In supersession of this Ministry's Resolution No. F. 16-16/66-MPT, dated the 27th February, 1967, it has been decided that the entry at Serial Number 6 under paragraph 1 of this Ministry's Resolution No. F. 16-16/66-MPT, dated the 28th September, 1966, viz., "one representative of the Ministry of Education" should stand.

The following modifications may be made in the list of Members given in paragraph 1 of this Ministry's Resolution dated 28th September, 1966, referred to above :—

1. Insert "Union Deputy Minister for Health, Family Planning and Urban Development" after Serial No. 1 and number the same as Serial No. 2. The Serial Nos. of subsequent entries may be changed as No. 3, 4 and so on.
2. Add the following new entry at the end of the list of Members :  
"One representative of the Department of Social Welfare."
3. The word "Member" occurring against the existing entry "Assistant Director General of Health Services (Medical)" may be substituted by the word "Secretary" and the word "Secretary" occurring against the "Mental Health Adviser, Dte. General of Health Services" may be substituted by the word "Member".

**ORDER**

ORDERED that a copy of this Resolution be communicated to the Private and Military Secretaries to the President, Prime Minister's Secretariat, Cabinet Secretariat, Planning Commission, the Ministries of the Government of India, State Governments, Union Administrations, Lok Sabha Secretariat, Rajya Sabha Secretariat, Department of Parliamentary Affairs, Director General of Health Services, Chairman, Central Social Welfare Board, New Delhi/Secretary, Indian Medical Association, New Delhi/Secretary, Indian Psychiatric Society, Medical College, Rohtak/A.G.C.R., New Delhi/A.G., Madras/A.G., Rajasthan, Jaipur/A.G., Bihar, Ranchi/Publisher, Gazette of India, New Delhi.

ORDERED also that the Resolution be published in the Gazette of India for general information.

R. N. MADHOK, Jt. Secy.

**MINISTRY OF IRRIGATION AND POWER***New Delhi, the 11th December 1967*

No. 11/13/67-B&B.—With the setting up of the Beas Construction Board with effect from the 1st October, 1967, it is considered necessary to reconstitute the Beas Board of Consultants to obtain technical advice of the highest order on the Beas Project. With effect from 15th December, 1967, the Beas Board of Consultants will consist of the following :—

**Chairman**

- (1) Dr. A. N. Khosla, Governor, Orissa.

**Members**

- (2) The Chairman, C.W. & P.C.
- (3) Shri M. R. Chopra, Vice Chancellor, Roorkee University.
- (4) Shri N. G. K. Murti, Chairman, Bhakra Management Board.
- (5) Shri Karnail Singh, ex-Chairman, Railway Board.
- (6) Shri K. L. Vij, Vice-Chairman, C.W. & P.C.
- (7) Shri R. S. Gill, Chairman, Punjab State Electricity Board.

- (8) Shri Yadav Mohan, Administrator, Rajasthan Canal Project.
- (9) Shri Moti Ram, *ex-Chief Engineer*, Rajasthan.
- (10) Dr. F. A. Nickell.
- (11) Mr. J. B. Cooke.
- (12) Commissioner for Indus Waters and *ex-officio*, Joint Secretary to the Govt. of India.

The 31st January 1968

#### RESOLUTION

No. EL-II-12(21)/61-Vol.III.—In this Ministry's Resolution No. EL-II-12(21)/61, dated the 26th September, 1962, relating to the constitution of the Delhi Thermal Project Control Board, as amended *vide* Resolution No. EL-II-12(21)/61, dated the 4th October 1967, the following shall be substituted as entry 2 under paragraph 2:—

2. Deputy Minister for Irrigation and Power—*Member*. The other entries under para. 2 shall be *renumbered* as entries 3 to 14.

#### ORDER

ORDERED that the Resolution be communicated to the Government of Punjab, the Delhi Administration, the Delhi Municipal Corporation, the Punjab State Electricity Board, the Ministries of the Government of India, Prime Minister's Secretariat, Secretary to the President, the Planning Commission and the Comptroller and Auditor General of India.

ORDERED also that the Resolution be published in the Gazette of India.

K. P. MATHRANI, Secy.

#### MINISTRY OF LABOUR, EMPLOYMENT AND REHABILITATION

(Department of Labour and Employment)

New Delhi, the 27th January 1968

#### CORRIGENDUM

No. WB-7(1)/67.—The following corrections in appendices to the Resolution No. WB-7(1)/67 dated the 30th December, 1967, are notified for the information of all concerned.

#### Corrections

(a) *Appendix I*: (i) The date of signing the recommendations shall be corrected to read "19th" instead of "20th" November, 1967.

(ii) The following shall be added as a foot-note.

NOTE: The above recommendations were subsequently endorsed by Shri R. S. Panj hazari, a member of the Wage Board.

(b) *Appendices II and III*: In the existing lists of signatories to the recommendations, the entries relating to Shri R. Balakrishna shall be *deleted* and the following shall be added as a foot-note in both the appendices:—

NOTE: The above recommendations were subsequently endorsed by the two other members of the Wage Board, namely, Shri R. Balakrishna and Shri R. S. Panj hazari.

The 29th January 1968

#### CORRIGENDUM

No. WE. 4/1/36/66.—In para 2 of Notification No. WE. 4/1/36/66, dated the 27th October, 1967 published in the Gazette of India Part I, Section 1 dated the 11th November, 1967 (Kartika 20, 1889) for the existing entry:—

"5. Shri N. K. Joshi, Labour Adviser and Deputy Secretary to the Government of Rajasthan, Labour & Employment Department, Jaipur."

the following entry shall be substituted:—

"5. Shri N. K. Joshi, Labour Commissioner and *Ex-Officio* Deputy Secretary to the Government, Labour Department, Rajasthan Jaipur."

HANS RAJ CHHABRA, Under Secy.

#### MINISTRY OF RAILWAYS

(Railway Board)

#### RULES

New Delhi, the 10th February 1968

No. E(GR)1-67RR2-2.—The rules for a competitive examination to be held by the Union Public Service Commission in August/September 1968, for the purpose of filling vacancies in the following Services are, with the concurrence of the Ministries/Departments concerned, published for general information:

- (i) Indian Railway Service of Engineers;
- (ii) Indian Railway Service of Electrical Engineers;
- (iii) Indian Railway Service of Signal Engineers;
- (iv) Indian Railway Service of Mechanical Engineers;
- (v) Central Engineering Service, Class I;
- (vi) Central Engineering Service, Class II;
- (vii) Central Electrical Engineering Service, Class I;
- (viii) Central Electrical Engineering Service, Class II;
- (ix) The Indian Inspection Service, Class I (Engineering Branch);
- (x) Indian Supply Service, Class I;
- (xi) Military Engineer Services, Class I (Buildings and Roads Cadre);
- (xii) Military Engineer Services, Class I (Electrical and Mechanical Cadre);
- (xiii) Telegraph Engineering Service, Class I;
- (xiv) Central Water Engineering (Class I) Service; and
- (xv) Central Power Engineering (Class I) Service.

2. The number of vacancies to be filled on the results of the examination will be specified in the Notice issued by the Commission. Reservations will be made for candidates belonging to the Scheduled Castes and the Scheduled Tribes in respect of vacancies as may be fixed by the Government of India.

Scheduled Castes/Tribes mean any of the Castes/Tribes mentioned in the Scheduled Castes/Tribes Lists (Modification) Order, 1956, read with Scheduled Castes and Scheduled Tribes Orders (Amendment) Act, 1956, the Constitution (Jammu and Kashmir) Scheduled Castes Order, 1956, the Constitution (Andaman and Nicobar Islands) Scheduled Tribes Order, 1959, the Constitution (Dadra and Nagar Haveli) Scheduled Castes Order, 1962, the Constitution (Dadra and Nagar Haveli) Scheduled Tribes Order 1962, the Constitution (Pondicherry) Scheduled Castes Order, 1964 and the Constitution (Scheduled Tribes) (Uttar Pradesh) Order, 1967.

3. The examination under these rules shall be conducted by the Commission in the manner prescribed in Appendix I to these rules.

The dates on which and the places at which the examination will be held shall be fixed by the Commission.

4. A candidate must be either:—

- (a) a citizen of India, or
- (b) a subject of Sikkim, or
- (c) a subject of Nepal, or
- (d) a subject of Bhutan, or
- (e) a Tibetan refugee who came over to India, before the 1st January, 1962, with the intention of permanently settling in India, or
- (f) a person of Indian origin who has migrated from Pakistan, Burma, Ceylon and the East African countries of Kenya, Uganda and the United Republic of Tanzania (formerly Tanganyika and Zanzibar) with the intention of permanently settling in India;

Provided that a candidate belonging to categories (c), (d), (e) and (f) above shall be a person in whose favour a certificate of eligibility has been issued by the Government of India.

Certificate of eligibility will not however, be necessary in the case of candidates belonging to any one of the following categories :—

- (i) Person who migrated to India from Pakistan before the nineteenth day of July, 1948, and have ordinarily been residing in India since then.
- (ii) Persons who migrated to India from Pakistan on or after the nineteenth day of July, 1948, and have got themselves registered as citizens of India under Article 6 of the Constitution.
- (iii) Non-citizens in category (f) above who entered service under the Government of India before the commencement of the Constitution, viz., 26th January, 1950, and who have continued in such service since then without a break. Any such person who re-entered or may re-enter such service with break after the 26th January, 1950, will, however, require certificate of eligibility in the usual way.

A candidate in whose case a certificate of eligibility is necessary may be admitted to the examination and he may also be provisionally appointed subject to the necessary certificate being given to him by the Government.

5. (a) A candidate for this examination must have attained the age of 20 years and must not have attained the age of 25 years on the 1st August 1968, i.e., he must have been born not earlier than the 2nd August, 1943 and not later than the 1st August, 1948.

(b) The upper age-limit of 25 years will be relaxable up to 30 years in the case of the Government servants of the following categories applying for Services other than the Telegraph Engineering Service, Class I, if they are employed in a Department/Office under the control of any of the authorities mentioned in column 1 below and apply for admission to the examination for the corresponding service(s) mentioned in column 2.

- (i) A candidate who holds substantively a permanent post in the particular Department/Office concerned. This relaxation will not be admissible to probationer appointed against a permanent post in the Department/Office during the period of his probation.
- (ii) A candidate who has been continuously in a temporary service in the particular Department/Office for at least 3 years on the 1st August, 1968.
- (iii) A temporary Assistant Engineer recruited through the Commission to the Civil Electrical Signal and Mechanical Engineering and Transportation (Power) Departments of Indian Railways will also be eligible for this concession irrespective of the length of his service in the Department.

Column 1	Column 2
Railway Department	<ul style="list-style-type: none"> <li>{ I.R.S.E.</li> <li>{ I.R.S.E.E.</li> <li>{ I.R.S.S.E.</li> <li>{ I.R.S.M.E.</li> </ul>
Central Public Works Department	<ul style="list-style-type: none"> <li>{ C.E.S., Class I</li> <li>{ C.E.S., Class II</li> <li>{ C.E.E.S., Class I</li> <li>{ C.E.E.S., Class II</li> </ul>
Director General of Supplies and Disposals.	<ul style="list-style-type: none"> <li>{ I.S.S., Class I</li> <li>{ I.I.S., Class I</li> </ul>
Engineer-in-Chief, Army Headquarters.	<ul style="list-style-type: none"> <li>{ M.E.S., Class I (B&amp;R Cadre)</li> <li>{ M.E.S., Class I (E&amp;M Cadre)</li> </ul>
Central Water and Power Commission	<ul style="list-style-type: none"> <li>{ C.W.E. (Class I) Service</li> <li>{ C.P.E. (Class I) Service</li> </ul>

NOTE.—The period of apprenticeship, if followed by appointment against a working post on the Railways, may be treated as Railway Service for the purpose of age concession.

(c) The upper age-limit of 25 years will be relaxable up to 30 years also in respect of candidates for the Telegraph Engineering Service, Class I, in the case of the following :—

(i) A candidate who holds substantively a permanent post in the Posts and Telegraphs Department. This relation will not be admissible to a probationer appointed against a permanent post in the Department during the period of his probation.

(ii) A candidate who has continuously held for a period of not less than 2 years on the 1st August, 1968 any of the following temporary posts under the Posts and Telegraphs Department.

1. Repeater Station Assistant.
2. Foreman or Assistant Foreman Telegraph Workshops.
3. Temporary Assistant Engineer Workshops.
4. Engineering Supervisor.
5. Workshop Supervisor.

PROVIDED THAT NO CANDIDATE SHALL BE PERMITTED, UNDER THE RELAXATION(S) OF THE UPPER AGE LIMIT MENTIONED AT (b) AND (c) ABOVE, TO COMPETE MORE THAN THREE TIMES AT THE EXAMINATION.

(d) The upper age-limit prescribed above will be further relaxable :—

- (i) Up to a maximum of five years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe;
- (ii) Up to a maximum of three years, if a candidate is a *bona fide* displaced person from East Pakistan and has migrated to India on or after January 1, 1964. This concession will not, however, be admissible to a candidate who has already appeared at five previous examinations;
- (iii) Up to a maximum of eight years, if a candidate belongs to a Scheduled Caste or a Scheduled Tribe and is also a *bona fide* displaced person from East Pakistan and has migrated to India on or after January 1, 1964. This concession will not, however, be admissible to a candidate who has already appeared at ten previous examinations;
- (iv) Up to a maximum of three years if a candidate is a resident of the Union Territory of Pondicherry and has received education through the medium of French at some stage;
- (v) Up to a maximum of three years if a candidate is a *bona fide* repatriate of Indian origin from Ceylon and has migrated to India on or after 1st November, 1964, under the Indo-Ceylon Agreement of October, 1964. This concession will not, however, be admissible to a candidate who has already appeared at five previous examinations;
- (vi) Up to a maximum of eight years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe and is also a *bona fide* repatriate of Indian origin from Ceylon and has migrated to India on or after 1st November, 1964, under the Indo-Ceylon Agreement of October, 1964. This concession will not, however, be admissible to a candidate who has already appeared at ten previous examinations;
- (vii) Up to a maximum of three years if a candidate is a resident of the Union Territory of Goa, Daman and Diu;
- (viii) Up to a maximum of three years if a candidate is of Indian origin and has migrated from Kenya, Uganda and the United Republic of Tanzania (formerly Tanganyika and Zanzibar);
- (ix) Up to a maximum of three years if a candidate is a *bona fide* repatriate of Indian origin from Burma and has migrated to India on or after 1st June, 1963. This concession will not, however, be admissible to a candidate who has already appeared at five previous examinations;
- (x) Up to a maximum of eight years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe and is also a *bona fide* repatriate of Indian origin from Burma and has migrated to India on or after 1st June, 1963. This concession will not, however, be admissible to a candidate who has already appeared at ten previous examinations;

- (xi) Up to a maximum of three years in the case of Defence Services personnel, disabled in operations during hostilities with any foreign country or in a disturbed area and released as a consequence thereof. This concession will not, however, be admissible to a candidate who has already appeared at five previous examinations; and
- (xii) Up to a maximum of eight years in the case of Defence Services personnel, disabled in operations during hostilities with any foreign country or in a disturbed area, and released as a consequence thereof, who belong to the Scheduled Castes or the Scheduled Tribes. This concession will not, however, be admissible to a candidate who has already appeared at ten previous examinations.

*N.B.* (i).—For the purposes of this Rule, a candidate shall be deemed to have competed at the examination once for all the Services/posts ordinarily covered by the examination if he competes for any one or more of the Services/posts.

A candidate shall be deemed to have competed at the examination if he actually appears in any one or more subjects.

*N.B.* (ii).—The candidature of a person who is admitted to the examination under the age concession mentioned in Rule 5(b) or 5(c) above is liable to be cancelled, if, after submitting his application, he resigns from service or his services are terminated by his department/office, either before or after taking the examination. He will, however, continue to be eligible if he is retrenched from the Service or post after submitting his application.

A candidate who, after submitting his application to his department, is transferred to other department/office, will be eligible to compete under departmental age concession for the service, for which he would have been eligible, but for his transfer, provided his application has been forwarded by his parent department.

SAVE AS PROVIDED ABOVE THE AGE LIMITS PRESCRIBED CAN IN NO CASE BE RELAXED.

#### 6. A candidate must have—

- (A) Obtained a degree in Engineering from a University incorporated by an Act of the Central or State Legislature in India or other educational Institutes established by an Act of Parliament, or declared to be deemed as Universities under Section 3 of the University Grants Commission Act, 1956; or
- (B) passed Sections A and B of the Associate Membership Examination of the Institution of Engineers (India); or
- (C) obtained a degree/diploma in Engineering, from such foreign Universities/Colleges/Institutions and under such conditions as may be recognised by the Government for the purpose from time to time.

Provided that a candidate for the Indian Railway Service of Electrical Engineers, the Indian Railway Service of Signal Engineers, the Indian Railway Service of Mechanical Engineers, the Telegraph Engineer Service, Class I, the Central Electrical Engineering Services, Class I and Class II, the Military Engineer Services, Class I (Electrical and Mechanical Cadre), the Central Water Engineering (Class I) Service (Mechanical Engineering Posts) and the Central Power Engineering (Class I) Service may possess any of the above qualifications or any of the qualifications mentioned below, namely,

- (a) a pass in the Graduate Membership Examination of the Institution of Tele-communication Engineers (India);
- (b) a pass in the Graduate Membership Examination of the Institute of Electronics and Radio Engineers, London, held after November, 1959.

The Graduate Membership Examination of the Institution of Electronics and Radio Engineers, London, held prior to November, 1959 is also acceptable subject to the following conditions:—

- (1) that the candidates who have passed the examination held prior to November, 1959, should have appeared and passed in the following additional subjects:
  - (i) Principles and Applications of Electrical Engineering (in accordance with the syllabus prescribed in Section A of Post-1959 Scheme).

- (ii) Mathematics II (in accordance with the syllabus prescribed in Section B of Post-1959 Scheme).

- (2) that the candidates concerned should produce a certificate from the Institution of Electronics and Radio Engineers, London, in fulfilment of the condition prescribed at (1) above.

NOTE 1.—A candidate who has appeared at an examination the passing of which would render him eligible to appear at his examination, but has not been informed of the result, may apply for admission to the examination. A candidate who intends to appear at such a qualifying examination may also apply, provided that the qualifying examination is completed before the commencement of this examination. Such candidates will be admitted to the examination, if otherwise eligible, but the admission would be deemed to be provisional and subject to cancellation if they do not produce proof of having passed the examination, as soon as possible, and in any case not later than two months after the commencement of this examination.

NOTE 2.—In exceptional cases, the Commission may treat a candidate, who has not any of the qualifications prescribed in this rule, as educationally qualified provided that he has passed examinations conducted by other institutions, the standard of which in the opinion of the Commission, justifies his admission to the examination.

NOTE 3.—A candidate, who is otherwise qualified but who has taken a degree from a foreign University which is not recognised by Government, may also apply to the Commission and may be admitted to the examination at the discretion of the Commission.

7. Candidates must pay the fee prescribed in Annexure I to the Commission's Notice.

8. A candidate already in Government Service, whether in a permanent or a temporary capacity, must obtain prior permission of the Head of the Department to appear for the examination.

9. The decision of the Commission as to the eligibility or otherwise of a candidate for admission to the examination shall be final.

10. No candidate shall be admitted to the examination unless he holds a certificate of admission from the Commission.

11. Any attempt on the part of a candidate to obtain support for his candidature by any means may disqualify him for admission.

12. A candidate who is or has been declared by the Commission guilty of impersonation or of submitting fabricated documents or documents which have been tampered with or of making statements which are incorrect or false or of suppressing material information or otherwise resorting to any other irregular or improper means for obtaining admission to the examination, or of using or attempting to use unfair means in the examination hall or of misbehaviour in the examination hall, may, in addition to rendering himself liable to criminal prosecution:—

- (a) be debarred permanently or for a specified period:—

- (i) by the Commission, from admission to any examination or appearance at any interview held by the Commission for selection of candidates; and

- (ii) by the Government from employment under them;

- (b) be liable to disciplinary action under the appropriate rules, if he is already in service under Government.

13. Candidates who obtain such minimum qualifying marks in the written examination as may be fixed by the Commission in their discretion shall be summoned by them for an interview for a personality test.

14. After the examination, the candidates will be arranged by the Commission in the order of merit as disclosed by the aggregate marks finally awarded to each candidate; and in that order so many candidates as are found by the Commission to be qualified by the examination shall be recommended for appointment up to the number of unreserved

vacancies decided to be filled on the results of the examination.

Provided that any candidate belonging to the Scheduled Castes or the Scheduled Tribes who though not qualified by the standard prescribed by the Commission for any service, is declared by them to be suitable for appointment thereto with due regard to maintenance of efficiency of administration, shall be recommended for appointment to vacancies reserved for members of the Scheduled Castes and the Scheduled Tribes, as the case may be, in that service.

15. The form and manner of communication of the result of the examination to individual candidates shall be decided by the Commission in their discretion and the Commission will not enter into correspondence with them regarding the result.

16. Due consideration will be given to the preferences expressed by a candidate at the time of his application, but the Government of India reserve the right to assign him to any Service/post for which he is a candidate.

17. Success in the examination confers no right to appointment, unless Government are satisfied after such an enquiry as may be considered necessary, that the candidate is suitable in all respects for appointment to the service.

18. A candidate must be in good mental and bodily health and free from any physical defect likely to interfere with the discharge of his duties as an officer of the service. A candidate who (after such physical examination as Government or the appointing authority, as the case may be, may prescribe) is found not to satisfy those requirements will not be appointed. All candidates who are declared qualified for the Personality Test will be physically examined at the place where they are summoned for interview, either immediately before or after the interview. Candidates will have to pay a fee of Rs. 16.00 to the Medical Board. The fact that a candidate has been physically examined will not mean or imply that he will be considered for appointment.

In order to prevent disappointment candidates are advised to have themselves examined by a Government Medical Officer of the standing of a Civil Surgeon, before applying for admission to the examination. Particulars of the nature of the medical test to which candidates will be subjected before appointment and of the standard required are given in Appendix II. For the disabled ex-Defence Services personnel the standards will be relaxed consistent with the requirements of each Service.

19. (a) No male candidate who has more than one wife living or who, having a spouse living, marries in any case in which such marriage is void by reason of its taking place during the lifetime of such spouse, shall be eligible for appointment to any of the Services, appointments to which are made on the results of this competitive examination, unless the Government of India, after being satisfied that there are special grounds for doing so, exempt any male candidate from the operation of this rule.

(b) No female candidate whose marriage is void by reason of the husband having a wife living at the time of such marriage or who has married a person who has a wife living at the time of such marriage shall be eligible for appointment to any of the Services, appointments to which are made on the results of this competitive examination, unless the Government of India after being satisfied that there are special grounds for doing so, exempt any female candidate from the operation of this rule.

20. Brief particulars relating to the Services/posts to which recruitment is being made through this examination are given in Appendix III.

C. S. PARAMESWARAN, Secretary.

#### APPENDIX I

1. The examination shall be conducted according to the following plan :—

Part I: Compulsory and Optional papers as given in para 2 below against each Service. The standard and syllabi prescribed for these papers are given in the Schedule to this

Appendix. The duration of each of the papers except 'General Knowledge' will be of 3 hours. The duration of the paper 'General Knowledge' will be of 2 hours.

Part II: Personality test for such candidates as may be called by the Commission carrying a maximum of 300 marks (Please see para 6 below).

2. The following will be the subjects for the written examination :—

Subjects	Maximum Marks
<b>A. Indian Railway Service of Engineers—</b>	
(a) <i>Compulsory</i> —	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Structural Design	200
(4) Building Materials and Structures	100
(5) Transport Engineering	100
(6) Surveying	100
(7) Sanitary Engineering and Water Supply	100
TOTAL	800
(b) <i>Optional</i> —Any two of the following subjects :	
(1) Prime Movers	100
(2) Hydraulics and Hydraulic Machines	100
(3) Electrical Engineering	100
(4) Architecture and Town Planning	100
(5) Mechanical Engineering	100
<b>B. Indian Railway Service of Electrical Engineers—</b>	
(a) <i>Compulsory</i> —	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Electrical Engineering	200
(4) Mechanical Engineering	200
(5) Applied Mechanics	200
TOTAL	800
(b) <i>Optional</i> —Any two of the following subjects :	
(1) Physics (including Electricity and Magnetism)	100
(2) Applied Mathematics	100
(3) Surveying	100
(4) Electrical Communication Engineering	100
(5) Workshop Organisation and Management	100
<b>C. Indian Railway Service of Signal Engineers—</b>	
(a) <i>Compulsory</i> —	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Electrical Engineering	200
(4) Electrical Communication Engineering	200
(5) Mechanical Engineering	200
TOTAL	800
(b) <i>Optional</i> —Any two of the following :	
(1) Physics (including Electricity and Magnetism)	100
(2) Applied Mechanics	100
(3) Applied Mathematics	100
(4) (a) Building Materials and Structures 50 } (b) Transport Engineering 50 }	100
(5) Workshop Organisation and Management	100
(6) Applied Electronic Circuits	100

<i>Subjects</i>	<i>Maximum Marks</i>
<b>D. Indian Railway Service of Mechanical Engineers—</b>	
<i>(a) Compulsory</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge . . . . .	100
(3) Applied Mechanics . . . . .	200
(4) Theory of Machines and Machine Design . . . . .	200
(5) Prime Movers . . . . .	200
<b>TOTAL . . . . .</b>	<b>800</b>

*(b) Optional—Any two of the following subjects :*

(1) Hydraulics and Hydraulic Machines . . . . .	100
(2) Electrical Engineering . . . . .	100
(3) Metallurgy . . . . .	100
(4) Workshop Technology . . . . .	100
(5) Physics (including Electricity and Magnetism) . . . . .	100
(6) Workshop Organisation and Management . . . . .	100

**E. I. F. Central Engineering Services, Class I and Class II—***(a) Compulsory*

(1) English (including Essay and Precis Writing)	100
(2) General Knowledge . . . . .	100
(3) Structural Design . . . . .	200
(4) Building Materials and Structures . . . . .	100
(5) Transport Engineering . . . . .	100
(6) Surveying . . . . .	100
(7) Sanitary Engineering and Water Supply . . . . .	100
<b>TOTAL . . . . .</b>	<b>800</b>

*(b) Optional—Any two of the following subjects :*

(1) Prime Movers . . . . .	100
(2) Hydraulics and Hydraulic Machines . . . . .	100
(3) Electrical Engineering . . . . .	100
(4) Mechanical Engineering . . . . .	100
(5) Architecture and Town Planning (For C.E.S. Class I only) . . . . .	100

**G. I. H. Central Electrical Engineering Services, Class I and Class II—***(a) Compulsory—*

(1) English (including Essay and Precis Writing) . . . . .	100
(2) General Knowledge . . . . .	100
(3) Electrical Engineering . . . . .	200
(4) Mechanical Engineering . . . . .	200
(5) Applied Mechanics . . . . .	200
<b>TOTAL . . . . .</b>	<b>800</b>

*(b) Optional—Any two of the following subjects :*

(1) Physics (including Electricity & Magnetism) . . . . .	100
(2) Electrical Communication Engineering . . . . .	100
(3) Prime Movers . . . . .	100
(4) Applied Mathematics . . . . .	100
(5) Hydraulics and Hydraulic Machines . . . . .	100

<i>Subjects</i>	<i>Maximum Marks</i>
<b>I. Indian Inspection Service, Class I (Engineering Branch)—</b>	
<i>Plan 1</i>	
<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge . . . . .	100
(3) Electrical Engineering . . . . .	200
(4) Mechanical Engineering . . . . .	200
(5) Applied Mechanics . . . . .	200
<b>TOTAL . . . . .</b>	<b>800</b>

*(b) Optional—**Any two of the following subjects :*

(1) Physics (including Electricity and Magnetism) . . . . .	100
(2) Electrical Communication Engineering . . . . .	100
(3) Prime Movers . . . . .	100
(4) Applied Mathematics . . . . .	100
(5) Hydraulics and Hydraulic Machines . . . . .	100

*Plan 2—**(a) Compulsory—*

(1) English (including Essay and Precis Writing)	100
(2) General Knowledge . . . . .	100
(3) Applied Mechanics . . . . .	200
(4) Theory of Machines and Machine Design . . . . .	200
(5) Prime Movers . . . . .	200
<b>TOTAL . . . . .</b>	<b>800</b>

*(b) Optional—**Any two of the following subjects :*

(1) Hydraulics and Hydraulic Machines . . . . .	100
(2) Electrical Engineering . . . . .	100
(3) Metallurgy . . . . .	100
(4) Workshop Technology . . . . .	100
(5) Physics (including Electricity and Magnetism) . . . . .	100
(6) Workshop Organisation & Management . . . . .	100

*Plan 3—**(a) Compulsory—*

(1) English (including Essay and Precis Writing)	100
(2) General Knowledge . . . . .	100
(3) Structural Design . . . . .	200
(4) Building Materials and Structures . . . . .	100
(5) Transport Engineering . . . . .	100
(6) Surveying . . . . .	100
(7) Sanitary Engineering and Water Supply . . . . .	100
<b>TOTAL . . . . .</b>	<b>800</b>

*(b) Optional—**Any two of the following subjects :*

(1) Prime Movers . . . . .	100
(2) Hydraulics and Hydraulic Machines . . . . .	100
(3) Electrical Engineering . . . . .	100
(4) Mechanical Engineering . . . . .	100



Subjects	Maximum Marks
<b>J. Indians Supply Service, Class I—</b>	
<i>Plan I—</i>	
<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Applied Mechanics	200
(4) Theory of Machines and Machine Design	200
(5) Prime Movers	200
<b>TOTAL</b>	<b>800</b>

<i>(b) Optional—Any two of the following subjects :</i>	
(1) Hydraulics and Hydraulic Machines	100
(2) Electrical Engineering	100
(3) Metallurgy	100
(4) Workshop technology	100
(5) Physics (including Electricity and Magnetism)	100
(6) Workshop Organisation and Management	100

*Plan 2—*

<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Electrical Engineering	200
(4) Mechanical Engineering	200
(5) Applied Mechanics	200
<b>TOTAL</b>	<b>800</b>

<i>(b) Optional—Any two of the following subjects :</i>	
(1) Physics (including Electricity and Magnetism)	100
(2) Electrical Communication Engineering	100
(3) Prime Movers	100
(4) Applied Mathematics	100
(5) Hydraulics and Hydraulic Machines	100

**K. Military Engineer Services, Class I (Buildings and Roads Cadre and Electrical and Mechanical Cadre)****Building and Roads Cadre—**

<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Structural Design	200
(4) Building Materials and Structures	100
(5) Transport Engineering	100
(6) Surveying	100
(7) Sanitary Engineering and Water Supply	100
<b>TOTAL</b>	<b>800</b>

<i>(b) Optional—Any two of the following subjects :—</i>	
(1) Prime Movers	100
(2) Hydraulics and Hydraulic Machines	100
(3) Electrical Engineering	100
(4) Mechanical Engineering	100
(5) Architecture and Town Planning	100

**Electrical and Mechanical Cadre—**

<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Electrical Engineering	200
(4) Mechanical Engineering	200
(5) Applied Mechanics	200
<b>TOTAL</b>	<b>800</b>

Subjects	Maximum Marks
<i>(b) Optional—Any two of the following subjects :</i>	
(1) Physics (including Electricity and Magnetism)	100
(2) Electrical Communication Engineering	100
(3) Prime Movers	100
(4) Applied Mathematics	100
(5) Hydraulics and Hydraulic Machines	100

**L. Telegraph Engineering Service, Class I—**

<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Electrical Communication Engineering	100
(4) Electrical Engineering	150
(5) Applied Mathematics	100
(6) Mechanical Engineering	150
<b>TOTAL</b>	<b>700</b>

*(b) Optional—Any two of the following subjects:—*

(1) Prime Movers	100
(2) Physics (including Electricity and Magnetism)	100
(3) Applied Mechanics	100

**M. Central Water Engineering (Class I) Service—****Civil Engineering Posts**

<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Structural Design	200
(4) Building Materials and Structures	100
(5) Irrigation and Hydraulic Structures	100
(6) Surveying	100
(7) Hydraulics and Hydraulic Machines	100
<b>TOTAL</b>	<b>800</b>

*(b) Optional—Any two of the following subjects :*

(1) Physics (including Electricity and Magnetism)	100
(2) Prime Movers	100
(3) Sanitary Engineering and Water Supply	100
(4) Electrical Engineering	100
(5) Architecture and Town Planning	100
(6) Hydrology	100

**Mechanical Engineering Posts—**

<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Applied Mechanics	200
(4) Theory of Machines and Machine Design	200
(5) Prime Movers	200
<b>TOTAL</b>	<b>800</b>

*(b) Optional—Any two of the following subjects :*

(1) Hydraulics and Hydraulic Machines	100
(2) Electrical Engineering	100
(3) Metallurgy	100
(4) Workshop Technology	100
(5) Physics (including Electricity and Magnetism)	100
(6) Workshop Organisation and Management	100

<i>Subjects</i>	<i>Maximum Marks</i>
<b>N. Central Power Engineering (Class I) Service—</b>	
<i>Electrical Engineering Posts—</i>	
<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Applied Mechanics	200
(4) Electrical Engineering	150
(5) Generation, Transmission and Distribution of Power	150
(6) Mechanical Engineering	100
<b>TOTAL</b>	<b>800</b>
<i>(b) Optional—Any two of the following subjects :</i>	
(1) Hydraulics and Hydraulic Machines	100
(2) Prime Movers	100
(3) Electrical Communication Engineering	100
(4) Workshop Organisation and Management	100
<i>Mechanical Engineering Posts—</i>	
<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Applied Mechanics	200
(4) Theory of Machines and Machine Design	200
(5) Prime Movers	200
<b>TOTAL</b>	<b>800</b>
<i>(b) Optional—Any two of the following subjects :</i>	
(1) Hydraulics and Hydraulic Machines	100
(2) Electrical Engineering	100
(3) Metallurgy	100
(4) Workshop Technology	100
(5) Physics (including Electricity and Magnetism)	100
(6) Workshop Organisation and Management	100
<b>O. Assistant Manager, Class I, P. &amp; T. Workshops Organisation—</b>	
<i>(a) Compulsory—</i>	
(1) English (including Essay and Precis Writing)	100
(2) General Knowledge	100
(3) Mechanical Engineering	200
(4) Applied Mechanics	200
(5) Electrical Engineering	200
<b>TOTAL</b>	<b>800</b>
<i>(b) Optional—Any two of the following subjects :</i>	
(1) Physics (including Electricity and Magnetism)	100
(2) Applied Mathematics	100
(3) Prime Movers	100
(4) Hydraulics and Hydraulic Machines	100
(5) Workshop Technology	100
(6) Workshop Organisation and Management	100
(7) Theory of Machines and Machine Design	100

(NOTE.—This scheme is the same as prescribed for recruitment to the Indian Ordnance Factories Service, Class I.).

3. All papers must be answered in English.

4. Candidates must write the papers in their own hand. In no circumstances will they be allowed the help of a scribe to write the answers for them.

5. The Commission have discretion to fix qualifying marks in any or all the subjects of the examination.

6. Special attention will be paid in the Personality Test to assessing the candidates' capacity for leadership, initiative and intellectual curiosity, tact and other social qualities, mental and physical energy, powers of practical application and integrity of character.

7. Marks will not be allotted for mere superficial knowledge.

8. Deductions up to 5 per cent. of the maximum marks for the written subjects will be made for illegible hand writing.

9. Credit will be given for orderly, effective and exact expression combined with due economy of words in all subjects of the examination.

#### SCHEDULE TO APPENDIX I

##### Standard and Syllabus

The standard of papers in English and General Knowledge will be such as may be expected of an Engineering Graduate. The standard of papers in other subjects will approximately be that of an Engineering Degree examination of an Indian University. There will be no practical examination in any of the subjects.

##### 1. ENGLISH

Questions to test the understanding of and the power to write English. Passages will usually be set for summary or précis.

##### 2. GENERAL KNOWLEDGE

General knowledge including knowledge of current events and of such matters of every day observation and experience in their scientific aspects as may be expected of an educated person who has not made a special study of any scientific subject. The paper will also include questions on History of India, and Geography of a nature which candidates should be able to answer without special study.

##### 3. APPLIED MATHEMATICS

*Statics.*—Vectors. Notion of force. Gravitational or Engineers' unit of force. Various kinds of forces. Friction. Composition and resolution of concurrent forces. Moments. Parallel forces and centres of gravity couples. Conditions of equilibrium of non-current coplanar forces. Funicular Polygon.

*Kinematics.*—Units of space and time. Rectilinear motion; motion of a projectile; angular motion, relative motion; simple harmonic motion.

*Kinetics.*—Newton's Laws. Absolute system of units. Linear momentum. Impact of elastic bodies. Impulse and impulsive forces, angular momentum; moments of inertia and radii of gyration; impulsive torque. Centrifugal forces. Conical pendulum. Motion of the centre of mass. Cant on railway curves and banking of road-tracks. Hoop stress and stress in the rim of a fly-wheel.

Work, power, kinetic and potential energy. Principle of energy. Kinetic energy due to rotation. Works done by a couple. Principle of Virtual work. Simple machines, mechanical advantage, and velocity ratio. Stable and unstable equilibrium. Deflection in a framed structure. Oscillations. Simple and Compound pendulum. Units and dimensions.

*Hydrostatics.*—Fluid pressure, its transmission and measurements, density; specific gravity; metric system of units; resultant pressure: centre of pressure; equilibrium of floating bodies; metacentre: Laws of Boyle and Charles. Mixture of gases Nature and action of simple hydraulic machines.

##### 4. STRUCTURAL DESIGN

##### (a) Buildings

Consideration of material used in construction of roof-trusses, Steel and timber. Determination of stress in trusses by various method. Dead-loads and wind pressure. Factors of safety and working stresses.

*Design of roof-trusses.*—Various types of roof-trusses and roof coverings; collar beam and hammer beam trusses.

Use of Euler's, Gordon's, Rankine's, Fidler's Jhonson's, and straight line formulae in the design of struts. Buckling factors of struts; curves showing comparative strength of struts obtained by various formulae. Choice of size of sections. Finish of steel work, Joints, Design of end bearings; methods of fixing and supporting ends.

Application of circle and ellipse of stress and Clapeyron's theorem to design of structures.

*Cast Iron and Steel Columns.*—Flange and web connections to steel columns; caps; bases; transverse bracing of columns.

*Foundations.*—Safe pressures; foundations for columns. Slab foundations: cantilever foundation; Grillage foundations; Wells; piles.

*Retaining Walls and earth pressure.*—Rankine's theory; Wedge theory. Winkler's and Bligh's graphical constructions, with corrections. Design of various types of retaining walls in masonry.

*Tall Masonry and Steel Chimneys.*—Theory and design.

*Design of steel and masonry.*—Reservoirs with considerations of wind pressure.

Deflection of framed structures and determination of stresses, etc., in redundant frames.

Influence diagrams for bending moment and shear for uniformly distributed and irregular loads on trusses, built-in beams and three-pinned, parabolic semielliptic and semi-circular arches.

General principles of dome design.

Principles of Building Design; consideration of loads on buildings, Steel Works, girders, etc., for buildings.

#### (b) Bridges

Design of superstructure. Determination by graphical and analytical methods of bending moment due to moving loads. Wind pressures.

Design of masonry bridges and culverts.

Plate-web girders. Analysis of stresses.

Warren and lattice girders.

Three-pinned arches; doubly pinned and rigid arches.

General consideration on the design of Suspension, cantilever and tabular bridges. Steel-arched bridges, Swing bridges.

#### (c) Reinforced Concrete

Shears bond and diagonal tension, its nature evaluation and location of reinforcement.

Design of simple and doubly reinforced beams and continuous beams.

Theory and design of reinforced concrete columns and piles. Design of slab foundations.

Design of simple cantilever and counterfort retaining walls. Equivalent moments of inertia for reinforced concrete sections.

Theory of elastic deflections and outline of investigation of stresses in reinforced concrete arches.

#### (d) General

Analysis of stress, analysis of strain, elastic limit and ultimate strength relation between the elastic constants. Launhardt-Weyrauch formula for working stresses in a structural member and determination of its cross-sectional area. Repetition of stresses. Bending moment and shearing force diagrams for dead-loads. Graphical determination of stresses in frames; effect of wind pressure; method of sections. Stress in the cross-section of a beam due to bending ( $M/I$ ;  $F/Y$ ;  $E/R$ ); compound and conjugated stresses. Rankine's theory

of earth pressure; depth of foundations and strength of footings. Grillage foundations; Columb's theory of earth pressure modification due to Rebahn.

Bending moment and shearing force diagrams for live loads. Analysis of uniform and uniformly varying stress. Elastic theory of bending of beams; bending and shear stresses in beams. Modulus of section and equivalent areas. Maximum and minimum stresses in a joint due to eccentric loading, stresses in dams and chimneys. Stability of block-work structure. Design of rivetted joint and stresses in boiler shells. Euler's theory concerning struts; modifications due to Rankine, Gordon and others. Torsion. Combined torsion and bending deflections. Encastre beams. Continuous beams and theorem of three moments. Elastic theory of arches. Masonry arches.

### 5. APPLIED MECHANICS

(a) *Statics*: Forces acting on a rigid body; moments of forces; composition and resolution of forces; friction-machines; efficiency; couples; conditions of equilibrium, with application to simple framed structures and beams; bending moment and shear force diagrams for dead-loads.

(b) *Hydrostatics*: Pressure at a point in a liquid, centre of pressure on an immersed plane area, equilibrium of floating bodies.

(c) *Kinematics (of Motion in a plane)*: Velocity and acceleration of a point; relative motion; acceleration of a point; moving in a circular path with uniform speed; simple harmonic motion; velocity-ratio; diagrams of simple mechanisms; instantaneous centre.

(d) *Kinetics*: Force, mass, impulse momentum, works, energy, power; moment of momentum, moment of inertia; their relations and measurements; conservation of energy; conservation of linear momentum; rectilinear motion of a body under a force (constant or variable), equation of motion of a particle; motion of a body in circular path with uniform speed balancing of rotating masses; rotation and oscillation of a body about a fixed axis.

(e) *Hydraulics*: Pressure and velocity change along a streamline; Bernoulli's theorem; flow through an orifice.

(f) *Stress and Strain*: Stress and strain in tension, compression and shear; Hooke's law; Relations between elastic constant; combined stress in two dimensions; circle diagrams; compound bars in tension and compression; elementary consideration of stress due to temperature changes.

(g) Bending moment and shearing force diagrams for live loads. Analysis of uniform and uniformly varying stress: elastic theory of bending of beams; bending and shear stresses in beams; Modulus of section and equivalent areas; maximum and minimum stresses in a joint due to eccentric loading; design of rivetted joints and stresses in boiler shells; welded joints.

(h) *Cylinders*: Thin cylindrical and spherical shells under internal pressure; stress in thick-walled cylinders under internal and external pressure; force and shrink fits.

(i) *Torsion*: Torsion of round bars, transmission of power by shafts.

(j) *Combined Stresses*: Combined bending and direct stress and combined bending and torsion.

(k) *Strain Energy*: Work done in elastic deformation; stresses due to suddenly applied loads.

(l) *Springs*: Laminated springs and close-coiled helical springs.

(m) *Struts*: Elementary theory of struts with use of empirical formulae.

(n) *Property of materials*: The mechanical properties of materials; composition and properties of the important metals used by engineers; effect of heat treatment, annealing and normalizing; effect of cold work on the properties of metals; elasticity, plasticity, ductility, tenacity, hardness, resistance to shock; resistance to repeated and alternating stress; effect of form and surface conditions; failure under combined stress; creep at high temperatures; considerations affecting the choice of the safe working stress in design.

## 6. ELECTRICAL ENGINEERING

**Direct Current.**—Principles of generators and motor. Types and characteristics. Starting and controlling appliances. Methods of testing of generators and motors. Operation in parallel of direct current generators. Types and general features of primary batteries. Testing of primary batteries. Types and testing of storage batteries. Method of charging Boosters and other auxiliary appliances.

**Alternating Currents.**—Production of alternating currents. Frequency and wave shape. Graphic representation of current, voltage and power in A.C. Circuits. Maximum and "R.M.S. Value" of simple sine wave. Effect of resistance, inductance, and capacity in A.C. circuit. Power and power factor in A.C. circuit. Single phase and poly-phase currents. Connections of poly-phase systems. Power Measurement in poly-phase circuits. Theory of alternator and its regulation. Parallel running. Theory of transformer. Transmission of poly-phase currents. Synchronous motors and Induction motors. Methods of starting. Efficiency and characteristics. Circle diagrams and testing of motors. Improvement of power factor. Motor converter and rotary converter and methods of starting of rotary converter. Principle of automatic voltage regulator.

**Electrical Instruments and Measurements.**—Principles of construction and theory of measuring instruments for direct and alternating currents. Commercial types. Calibrations of instruments. Measurements of resistances, Ohm-Meters. Types of bridges for measuring resistances. Potentiometer Phase and frequency meters Synchronoscope. Type of wattmeter.

**Transmission and Distribution of Electrical Energy.**—Systems of supply, economic voltage and size of conductor, Formulae for determination of size of conductor for standard systems of distribution of the load, voltage, etc., being given. Factors influencing voltage drop in D.C. and A.C. transmission lines. Influence of power factor of the load on voltage regulation of a transmission line. Standard equipment on generator and motor control panels for different types of D.C. and A.C. generators and motors.

## 7. PHYSICS (INCLUDING ELECTRICITY AND MAGNETISM)

**Heat.**—The methods of calorimetry and thermometry. Vapor-pressures, critical temperature and pressure, Conduction and diffusion of heat and the determination of constants Radiation and absorption; laws of cooling. Theory of exchanges; methods of measuring radiation, laws of thermodynamics; simple applications.

**Light.**—Velocity of light; Illumination, photometry. Archromatism in lens system; direct-vision spectroscopy.

**The wave theory.**—Simple interference phenomena. Huygen's principle explanation of straight line propagation, reflection and refraction of light. Action of mirror lenses, etc. reviewed from this standpoint. Simple diffraction phenomena, Gratings, and wavelengths determination. Spectrum analysis; Doppler's principle. Double refraction and polarization of light; rotatory polarization; simple application.

**Magnetism.**—Forces on a magnet in a magnetic field. Determination of axes and moment of magnet. Magnetic potential level surfaces. Interaction of two short magnets; determination of field strength Magnetic shell; its potential energy in magnetic field. Total normal induction. Gauss, theorem; number of lines of force. Magnetic induction in iron, etc. Theory of magnetism.

The magnetic field of the earth; elements and their variations; the compass and its corrections.

**Electricity.**—Electric capacity, specific inductive capacity. Distribution of electricity on surface of conductors; images. Value of electric force in simple cases of distribution. The mechanical force on charged conductors, energy of electrified systems. The dielectric medium; dielectric displacement currents.

Wheatstone's bridge, specific resistance; resistance thermometers. Conductivity of electrolytes; ionization; migration phenomena; accumulators. Standard cells; the potentiometer system of measurement. Thermoelectricity, application of thermodynamics; thermoelectric diagrams. Electro-magnetic

induction; coefficients of induction; induction coils. Energy of circuit carrying current when placed in a magnetic field; mechanical force on conductors carrying current; moving coil instruments. Lenz's law; illustration from dynamos and motors; etc. Determination of current resistance; E.M.F. in absolute measure. The discharge of a condenser; electric waves. Elementary theory of the electron.

The elementary theory of the continuous current dynamo and motor and of the alternating current dynamo. General principles of the application of electricity to lighting, power transmission; telegraphy etc.

**Sound.**—The transmission of energy through material media by wave motion speed of propagation of waves of permanent type. Nature of musical sounds; pitch; scales Reflection and refraction of sound; influence of wave-length. The vibration of strings, bars, plates and gas columns, resonance Interference and diffraction phenomena. Analysis of sound. Measurement of wave-length, velocity and pitch.

## 8. PRIME MOVERS

**Fuel, Gas Plants and Boilers.**—

**Fuel.**—

(a) Coal, wood, petroleum, gas, petrol, alcohol, etc.; Physical characteristics, approximate chemical composition; heat of combustion.

(b) **Gas Plant.**—Gas producers; pressure and suction plants arrangement and working.

(c) **Boilers.**—Draught; natural, forced and induced. Ordinary forms of stationary, locomotive, marine, water-tube and other type; heating surface, firegrate area; boiler efficiency; superheaters; feedwater heaters; accessories and management.

**Theory of Heat Engines.**—

(a) Thermodynamical principles: Carnot's cycle, perfect heat engine; second law.

(b) **Air engines.**—Stirling and other forms.

(c) **Internal Combustion Engines.**—Gas, oil and petrol engines; types and working; features of cycles. Proportioning of mixtures; efficiencies.

(d) **Steam.**—Thermodynamics of the generation, expansion and condensation of steam; heat diagrams; etc.

(e) Steam Engines and turbines, with special reference to modern developments.

(f) **Refrigerating Plants.**—Theory and general arrangement of the more common types.

(g) **Air Compressors.**—Theory of Pneumatic working.

**Generating Plant, Accessories and Details.**—

(a) General arrangements and construction of the more important types.

(b) Condensers air-pumps, circulating pumps, cooling tanks, etc.

(c) Carburettors and systems of ignition.

(d) Cylinders, pistons, cross-heads, guides, connecting rods, cranks, governors, fly-wheels, valves, and valve gears, glands and pipes.

(e) **Engine-Testing.**—Consumption of steam and fuel, gas and oil, brakes and dynamometers; indicators and indicator diagrams.

## 9. HYDRAULICS AND HYDRAULIC MACHINES

**Hydraulics.**—Definitions relating to flow of water; steam line motion. Bernoulli's theorem. Venturimeter.

Flow of water through small and large orifices; drowned orifices; sudden enlargements and contractions in flow of water. Time of emptying tanks. Flood absorptive capacity of tanks.

Flow of water over notches and weirs.

Flow of water through pipes; hydraulic gradients; losses of head due to bands, contraction and sudden enlargements; losses of head through siphons. Impacts at bends and thrust blocks.

Flow of water in open channels and in pipe; Chezy Bazin, Kutters and other formulae and their applications; cross sections of greatest efficiency.

Calculations of afflux and back-water curve.

Gauging the flow of water in open channels, water-meters.

Hydraulics and hydrostatics of weirs and other canal works.

Hydrokinetics; uniform and steady flow; streamline and turbulent motion, Bernoulli's theorem and its application.

Discharge through orifices and mouth pieces, and over notches and weirs. Variable heads. Laws of fluid friction. Head lost due to friction.

*Hydraulic Machinery.*—Impact of water on fixed and moving vane. Turbines, impulse and reaction. Description of different types of turbines. Determination of vane angles. Efficiencies of turbine plant Governing.

*Pumps.*—Reciprocating, centrifugal and turbine.

## 10. BUILDING MATERIALS AND STRUCTURES

### (i) BUILDING MATERIALS

*Stones.*—General characteristics of building stones. Chief varieties and uses. Quarrying. Blasting. Crushing. Screening. Dressing. Machinery and Tools used. Strength. Causes of decay and methods of preservation. Tests. Artificial stone. Manufacture and use.

#### *Bricks and Tiles.*—

General characteristics, varieties and use. Manufacture :—Selecting clay, moulding and burning in kilns. (Bull's and Hoffman's kilns). Causes of decay and methods of preservation. Strength. Essentials of good bricks. Mangalore and country tiles. Salt glazed pipes and China clay ware. Terracotta and refractory materials. Cement Block hollow and solid. Cement tiles, flooring, etc. Dadoes, etc. Machinery used.

#### *Glass and plastics.*—

*Glass.*—General characteristics, varieties, composition, manufacture and uses. *Plastics.*—Composition, properties and uses of celluloid, bakelite, ebonite, vitrolite, marbarite, etc.

#### *Cement, limes, mortars and concrete.*—

*Cement.*—Composition and manufacture. Storing, varieties; and use. Normal rapid hardening and low heat cements, Aluminous Cements; Properties. B.S.S. Tests.

*Limes.*—Hydraulic and fat. Occurrence, collection, burning, slacking and storing artificial hydraulic limes; gypsum; Plaster of Paris. Properties and uses, Tests.

*Sand Pozzolona.*—Properties, grading fineness, modulus, etc. Tests.

*Mortars.*—Lime mortars; ordinary and hydraulic. Use of sand and surkhi. Composition. Preparation, mixing and grinding. Storing. Uses. Properties. Strength and tests. Cement mortars. Composition, preparation and use. Properties, gauged mortars. Proportioning of materials in mortars. Effect of water on strength. Mud mortars and effect of water on their strength.

*Concrete.*—Lime concrete composition, preparation and use, Properties and strength Tests. Cement concrete constituents—Proportioning, grading, fineness, modulus and mixing. Water-cement ratio. Properties strength, uses and tests Water proofing and surface treatment.

*Timber.*—Varieties classification, characteristics test and uses of Indian timber. Defect in timber and causes of decay. Seasoning and preservation. Fire proofing. Market and standard sizes for different purposes.

Plywood and pressed wood. Manufacture properties and uses. Proprietary timber products used for sound and thermal products used for sound and thermal insulation.

#### *Masonry.*—

*Stone masonry.*—Materials, dressing, laying and jointing. Instruments and tools. Classes of masonry, uncoursed and

coursed rubble, random rubble, ashlar and block-in-course. Bonding of stones. Dry stone masonry. Pitching. Lifting devices; scaffolding. Terms used in masonry. Strength of and safeloads on masonry. Plain masonry and brick-work masonry.

Materials, brick laying and bonding, brick nogging Brick laying in footings, damp proof course, isolated columns, piers, chimneys, fire places, arches, vaults domes, inverts, centerings etc. Reinforced brick work. Scaffolding. Strength of brick masonry. Safe loads on brick work.

#### *Iron and Steel.*—

Varieties, classification; composition, characteristics, tests and uses of iron and steel. Important iron ores and their properties. Elements of manufacture of iron and steel by different processes. Modern steels and alloy steels, their properties and uses. Rolling mills for mild steel sections and types of British standard section, British standard sections for structural steel. Metallic products; pipes, tubes, plain and corrugated iron sheets. Cast iron and steel casting. Flaws in iron and steel.

*Preservatives.*—Composition, preparation, properties, tests and uses of paints, polishes, varnishes, distempers and oils and pigments used.

#### *Miscellaneous.*—

I. Carbonaceous cementing materials; asphalt and bitumen, natural and artificial asphaltic products. Properties and uses.

II. Asbestos and asbestos cement sheets, masonite, celotex, teetex and other products. Properties and uses.

III. Rubber, leatherfelt, coir and their products, wire ropes, properties and uses.

### (ii) DESIGN OF STRUCTURES

*Buildings.*—Preliminary investigations as to the suitability of site for different types of buildings, trial pits and borings, determination of bearing capacity of soils. Design of residential houses.

*Foundations.*—(a) General: Structural properties of soil, Principles of mechanics of resistance of soils.

Examination of soils probing sounding and borings; (wash boring, percussion boring, rotary boring). Boring tools. Trial pits. Testing soils for bearing pressure: Direct and indirect tests. Test piles.

(b) Bearing capacity of soils: Rock, clay and sandy soils: alluvium: quicksand Black cotton soil. Reclaimed soil Improving bearing capacity of soils by various methods. Transmission of load to foundations. Dead load, live load, and wind load. Impact factor. Ratio of live load and dead load.

(c) Shallow foundations. Area of foundations. Spread footings. Timber and steel grillage foundation. R.C.C. Raft, inverted arches. Foundations under eccentric loads; boundary footings. Depth of foundations.

(d) Preparation of bed: Demolition. Under-pining. Excavation, shoring and timbering of trenches. Bailing-out water.

(e) Deep foundations: Friction and bearing piles; timber, steel and cast iron piles. Screw piles. Precast cast in situ, (vibro, Franki) concrete piles. Bored piles. Pressure Piles. Pile driving. Safe load on piles; Hilley's formula.

Plain masonry and brick work, floor and roofs, carpentry and joinery, stairs columns, scaffolding, hoisting appliances for constructions and maintenance, safety measures.

#### *Structural plumbing.*—

*Fire proof construction.*—Protection of timber, steel and concrete from fire. Storing room construction.

Thermal insulating properties of masonry and concrete walls and plasters. Insulating boards. Thermal insulation of buildings.

Acoustics of buildings. Use of sound-proofing materials.

*Structures.*—Columns under bending and shear due to lateral loads. Caps and footings.

*Fixed and continuous Beams :—*

*Rolling loads.*—Influence lines for Bending moment and shear for beams. Influence lines for stresses in members of framed girders with straight and curved beams and subdivided panels.

Details design of rivetted and welded connections.

Detailed design of plate and lattice girders.

*Retaining walls.*—Theories of Earth Pressures; effect of surcharge; stability of retaining walls. Elements of soil mechanics.

Deflection of framed Structures; Williot Mohr diagrams. Stresses in redundant frames.

*Arches.*—Three hinged, two hinged and fixed arches. Influence lines for Bending moment, shear and thrust. Stresses due to loading, temperature and yielding of abutments.

*Suspension Bridges.*—Three hinged and two hinged stiffening girders.

Analysis of simple rigid frames Method of distribution of moments, and various other methods.

Simple structures such as rectangular and circular water towers; tanks; hemispherical, conical and segmental domes; retaining walls with or without counterforts.

*Reinforced concrete construction :—*

*Concrete.*—Various mixes and their uses—reinforcements round bars fabrics. Hybrid etc. Bending and placing reinforcement in slabs, beams, and columns (Rectangular and T. Beams, with single and double reinforcements. Shear and bound stress. Columns under axial and eccentric loads. Simple and combined footings.)

*Steel Construction.*—Beams and girders. Properties of British Standard sections; detailed design of beams, compound girders, built-up plate girders and lattice girders, limiting spans and economical depths, designs of flanges and webs, curtailment of flange plates, determination of size, pitch and arrangement of rivets; types of stiffeners and rulers for their spacing; design of joints and connections; methods of fabrication detailed design of crane and gantry girders of built-up plate and lattice girder types and typical details of constructions.

*Columns and struts.*—Plan and built up sections; assumptions regarding end conditions; practical formulae for design; detailed design of stanchions for buildings and of compression members of roof trusses and lattice girders; design and details of caps, bases and brackets for stanchions; joints and splices on stanchions; sizes, pitch and arrangements of rivets on flanges of plated stanchions, lacing on stanchions.

*Roof trusses.*—Types of roof trusses: limiting spans rise and camber; economical spacing data for design; detailed design of members including purlins, joints and connections; wind bracing on roof trusses, detailed design of steel framed sheds.

*Bridges :—*

General principles of design—Alignment, number of spans, economic spans, water-way calculations, depth of foundation. Scour depth, afflux clearance etc.

*Loading :—*

Dead load, live, impact factors—loading on road and railway bridges.

*Substructures.*—Abutments, wing walls and piers conditions of stability, types, design and construction—foundations.

*Superstructures.*—Different types of Road and Railway bridges. Choice of material and type. Bridge floors. Wearing surface on bridges. Methods of erection. Maintenance and preservation.

*Culverts.*—Box, pipe and Irish culverts. Cause ways and submersible bridges, general principles of construction.

*Approaches.*—Influence of conditions of approaches on the selection of the types of bridges—Construction of approaches.

## 11. TRANSPORT ENGINEERING

*General principles governing the design of Railways, Harbours, Aerodromes and other works.*

*Railways.*—Permanent way—Ballast, sleepers, rails, chairs and fastenings.

*Points and crossings.*—Details of construction, different types, turn-outs, cross-over formulae and practical rules for setting out.

Plate laying and maintenance of track, super elevation, creep of rails, ruling gradient. Compensation, tract resistance, tractive effort. Station yards and machinery, station building, platforms, sidings, signals and signal mechanism, staff quarters. Engine sheds, turn tables, water columns, aspits etc.

Level crossings in mountain railways.

Tunnels and their alignments and methods of construction.

*Road.*—Classification of roads—Estimation of traffic, availability of materials and choice of type of roads, tests of materials, gradient camber. Road foundation and under-drainage, road surfaces, water bound macadam, tar sprayed macadam, tar macadam, hot and cold emulsions, bituminous carpets, stone paving, wood block paving, asphalt roads, plain and reinforced concrete roads. Standards specifications; resistance to motion of vehicles and influence of various roads surface. Machinery employed—latest advances in highway engineering. Road signs and traffic control. Arboriculture.

*Harbours, and other work :—*

Physical geography in relation to docks and harbours: natural phenomena, prevalence and intensity of winds, coastal change; accretion and denudation; effect of artificial interference; tidal phenomena; waves form, height and length, wave velocity and wave action.

Objects of docks and harbours; consideration affecting choice of site; entrances to docks and harbours; foreshore protection and channel regulation wet dry and floating docks; tidal basins and harbour, different forms and types, details and methods of construction. Lock gates, their construction and working, machinery employed. Different types of quay walls, their construction and maintenance; signals and light-houses, ferries and landing piers. Description of important existing docks and harbours. Latest advancement in dock and harbour engineering.

*Aerodromes :—*

Aerodromes, their importance and spacing position and relation to the air zone, Runways Orientation, Flying Obstructions.

*Economics of aerodrome operation :—*

Location of auxiliary buildings. Traffic control in the vicinity of aerodrome and their effect on design. Location and design of terminal buildings. International standards.

## 12. IRRIGATION AND HYDRAULIC STRUCTURES

Principal irrigated crops, their seasons and water requirement. Concept of consumptive use. Economic utilisation of water. Methods of irrigation.

Theory of regime flow. Design of lined and unlined canals. Different types of linings. Alignment and construction of canals in cutting and embankment.

Regulation of canals; different types of canal outlets.

Theory of seepage flow. Methods of design of weirs and barrages on permeable foundations. Energy dissipation below weirs and barrages; scour protection measures; river training methods, general layout of canal headworks and functions of each component. Silt exclusion and ejection.

Design of falls and regulators. Cross drainage works and their design principles.

General consideration for selection of site for dams. Investigations connected with multipurpose project planning. Types of dams; exploration of foundations; materials for construction. Stability analysis of gravity dams and earth dams. Different types of sluices and spillways. Energy dissipation below spillways. Hydraulic jump as an energy dissipator. Spillway crest gates, their types and methods of operation.

Lift irrigation. Discharge of tubewells in confined and unconfined aquifers. Different types of strainers; methods of tubewell construction.

### 13. SURVEYING

*Surveying.*—Construction of Scales. Conventional signs. Use and adjustment of instruments. Theory of levelling, simple, compound check and reciprocal levelling. Various causes of errors in levelling. Elimination of such errors. Customary limits for errors. Method of keeping. Various styles of field-books. Use of boning rods. Cabin survey. Chain and compass survey.

*Theodolite.*—Traversing by Gales traverse system for city and town improvement surveys. Source of errors and required precision in traversing. Traverse tables. Theory and use of the simple plane-table and tangent clinometer, with and without the magnetic compass. Theory and use of the stadia method of plane-tableing with levelled heights and reductions of distances and heights by slide rule. The three-point problem of plane-tableing by resection from within and without the triangle. Geometrical and trigonometrical proof of the three-point problem. The two point problem with and without the magnetic compass. Triangulation with reciprocal value; heights of stations: base line measurements. Finding value of position by observations to three known points. Computation by rectangular co-ordinates with covergency correction.

Contouring the triangulated areas by the heights calculated from the reduced levels. Longitudinal and cross-sections run with a level. The location on the map of a road, railway, canal or weir, etc. The general principles of tunnel alignment and of carrying surface meridians underground for mine-surveys. Discussion on the latest patterns of instruments.

*Practical Astronomy.*—Instruction in spherical trigonometry up to the solution of the spherical triangle and the adoption of Napier's rules of circular parts. Definitions: systems of celestial, co-ordinates, the reason for sidereal, sun and mean time: acceleration retardation and equation of time. The Julian and Gregorian calendars; time and the various astronomical corrections.

Finding the meridian of a place by observations to the sun or a star at upper culmination by equal altitudes, by the sun or stars not in the meridian and by circumpolar stars at elongation: and finding time by the sun or stars on the meridian and ex-meridian; finding latitudes by Polaris and circum-meridinal observations. Use and constructions of sun dials.

*Railway curves and Alignment.*—Theory of curves, curves laid out with the aid of angular instruments with one theodolite. Curves laid out by linear measurements only. By chords and off sets (several methods). By off sets inside the Curve with certain ordinates from the long chord. Curve with certain given data to pass through a ruling point. Compound curves. Diversion curve. Vertical curves. Curves spiral or transition line. Setting on pegs for earth-work. Computation of areas of cross-sections, etc.

### 14. SANITARY ENGINEERING AND WATER SUPPLY

*General.*—Elementary Bacteriology and Chemistry of water and sewage.

*Water Supply.*—History and development of public water supplies; sources of supply; standards of purity for public water supplies. Quantity supplied *per capita* intakes. Pumping and gravity schemes. Water towers. Purifications, slow and rapid sand filtration. Sterilisation. Clear water reservoirs. Softening Pipes. Valves and fittings. Distribution of water. Detection and prevention of waste. Metering.

*Sanitation.*—Site and orientation of Buildings. Damp proof courses ventilation. Air-conditioning. House drainage. Conservancy and water-borne systems. Sanitary appliances. Constructions and testing of house drains. Pail depots. Public latrines and urinals.

*Prevention of Malaria incidental to engineering construction.*—

*Sewerage.*—Separate, combined and partially separate systems. Forms cross-sections, capacities and inclinations of sewers. Construction of sewers. Calculations of storm water. Storm water overflows, syphons, Lifts, ejectors and pumps for sewage. Manholes and lamp eyes. Flushing of sewers.

*Sewage disposal.*—Characteristics and composition of sewage. Essentials with regard to sewage treatment. Selections of site for disposal works. Disposal at dilution and treatment. Simple sedimentation and chemical precipitation. Contact beds. Percolating filters. Septic tanks. Imhoff tanks. Activated sludge process. Sludge disposal by various methods.

*Refuse.*—Collection and disposal of refuse.

### 15. ELECTRICAL COMMUNICATION ENGINEERING

#### A.—TELEGRAPHY

1. *Morse Telegraph Apparatus.*—Description of Signalling keys, Sounders, Relays, Galvanometers. Balancing boxes, Switches, etc., and their use in Morse Telegraphy.

2. *Morse Circuits.*—(a) Arrangements of apparatus and circuit connection for Simple and Differential and Bridge Duplex working terminal and Repeater offices. Single current and Double current working.

(b) General Principle of Quadruplex working.

3. *Multiplex Telegraphy.*—(a) Principle of Multiplex Baudot printing. Telegraph. Different methods of working the Baudot system. Double and quadruple working. Description of principal apparatus used in Baudot. Telegraphy including Retransmitter, Trade Transmitters. Key Board Perforators, etc., and their use.

(b) Teleprinters working. General principle of the "Stop-Start" systems of working. Teleprinters and its principle of action. General knowledge of its principal parts.

4. Testing of Lines and Cables and details of apparatus employed for such tests.

5. Power arrangements for Telegraph and Telephone offices. Use of Motor Generators, Rectifiers, charging Boards, Primary Cells and Accumulator.

6. Elementary Principles of Construction of Telegraph Lines. Description of Underground and Underwater Cables. How they are manufactured and laid.

#### B.—TELEPHONY

1. *Manual System.*—General principles of Magnetic Semi Central Battery, and Central Battery systems of working. Details of Exchange and Sub-office apparatus, and their circuit diagrams including Private Branch office equipments. Protective devices in Exchange and sub-office and at Cable and line Terminals. Details of Party Line working with Selective ringing.

2. *Automatic System.*—General principle of well known systems of Automatic Exchanges. Schematic Circuit diagrams of principal Exchange equipment. Automatic branch Exchanges. Details of Subscribers' Apparatus for the above systems.

3. *Telephone Transmissions.*—Principles of Transposition of Telephone Circuits. Prevention of Inductive Interference on Telephone Circuit. Characteristics of Telephone Circuits. Impedance of Telephone Circuits, and its measurements. Attenuation and Wave-length Constants. Decibel and Neper-Mile Standard Cable. Transmission loss measurement. Wave filter. Carrier Current working Telephone Repeater.

Thermionic Valves and their use in Telephony.

#### C.—RADIO TELEGRAPHY AND TELEPHONY

1. General details of Oscillatory Circuits. Natural Frequency and Wave-length. Logarithmic decrement. Forced Oscillation.

Long Wave and Short Wave Radio working. Points of difference between the two systems.

Various methods of Reception and Transmission of Electromagnetic waves. Different types of detectors and their adjuncts.

Thermionic valves as used on Wireless Telegraphy and Wireless Telephony. Valves as Detectors. Amplifiers, Rectifiers, Modulators and Oscillation Generators. Details of Transmitting and Receiving Circuits. Radiation of Electro Magnetic Waves. Atmospheric effects. Fading. Power plant for Wireless offices. Elementary principle of design of Aerials and Earths for Long and Short Wave systems. Directional Transmission and Reception.



## 16. MECHANICAL ENGINEERING

*Theory of Machines and Machine Design*

**Kinematics.**—Method of determining the relative velocities of parts in machines, by calculation and by graphic methods. Velocity and acceleration diagrams for the ordinary reciprocating engine and for quick return motions. Velocity ratios for toothed gearing including epicyclic gears. Velocity and acceleration in cam gears.

**Kinetics.**—Balancing of motors and of reciprocating engines. Crank effort diagram of engines and speed variation of flywheels. Governors. Simple causes of vibration problems. Whirling of shafts and torsional oscillations.

**Friction.**—Power transmitted or absorbed by belt drives and brakes. Friction gearings. Friction and lubrication of journal and thrust bearings, ball and roller bearings. Screw gears.

**Design of fastenings and Machine Parts.** Proportions for rivetted, bolted and welded joints and fastenings, pipe connections—Crank, rods and levers, valves, pipes and cylinders, bearings, coupling shafts and keyways. Tooth profile.

*Properties and Strength of Materials*

Stress and strain tension, compression, and shear.

Hooke's law. Relations between elastic constants.

Simple cases of combined stress in two dimensions. Circle diagram.

Compound bars in tension and compression. Elementary consideration of stress due to temperature changes.

Rivetted and welded joints.

Thin cylindrical and spherical shells under internal pressure.

Stresses in thick-walled cylinders under internal and external pressure.

Bending moments and shearing forces.

Simple theory of beams.

Slope and deflection of cantilevers and freely supported beams for simple cases of loading.

Torsion of round bars. Transmission of power by shafts.

Simple cases of combined bending and direct stress, and combined bending and torsion.

Work done in elastic deformation. Strain energy, Stresses due to suddenly applied loads.

Laminated springs and close coiled helical springs.

Elementary theory of strut with use of empirical formulae.

The mechanical properties of materials. Composition and properties of the important metals used by engineers. Effects of heat-treatment, annealing, and normalising. The effect of cold work on the properties of metals. Elasticity, plasticity, ductility, tenacity, hardness, resistance to shock, resistance to repeated and alternating stress. Creep and elevated temperatures. Common types of machine and instruments for the investigation of mechanical properties. Forms of specimen, procedure in carrying out tests, and methods of expressing results.

*Heat Engines*

Physical properties of steam; steam tables and their use. Fundamental laws of thermodynamics. Reversible and irreversible process. Ideal and actual cycles. Construction and use of temperature-entropy and heat-entropy charts.

Behaviour of steam in engine cylinders. Jacketing Superheating. Compounding Horse Power and steam consumption.

Testing of engines, indicators and indicator diagrams. Combination of indicator diagrams for multiple expansion engines. Brake and Brake horse-power Mechanical and thermal efficiencies. Steam consumption and heat balance for steam plants. The steam turbine. Steam flow in nozzles and blading. Calculations relating to blading and horse-power. Steam cycles in modern power plants. Regenerative feed heating and steam reheating cycles. Condensing plants; Jet and surface condensers. Air pumps. Air ejectors. Condensate extraction pumps. Fuels. Combustion: air supply and regulation. Analysis of fluid gases. Boilers, Super-heaters. Economisers.

Air preheaters. Furnaces, Boiler trials. Valve. Valve gear and valve diagrams. Governing. Crank effort diagrams. Flywheels. Balancing of engines.

The laws of perfect gases. Expansion and compression. Ideal cycles applicable to the internal combustion engine, and their representation by pressure volume and entropy temperature diagrams. Air standard efficiencies. Comparison of actual and ideal efficiency.

General properties of liquid and gaseous fuels. Calorific value and its determination. Combustion. Calculation of air-fuel ratios. Use of exhaust gas analysis. Volumetric efficiency. Gas producer.

The classification and cycles of operation of gas engines, petrol engines and heavy oil engines. Character of combustion process.

The general construction of internal combustion engines. Carburettors. Electrical ignition systems. Fuel pumps and injection systems. Governors and fuel control. Supercargers.

The mechanics of internal combustion engine-speed fluctuation—Balancing.

The testing of internal combustion engines. Apparatus and procedure. Indicators. Characteristics of Indicator diagrams. Fuel consumption and heat distribution. Engine losses. The representation and interpretation of test results.

*Hydraulics and Hydraulic Machinery*

Pressure of water at a point. Centre of pressure. Pressure on a surface. Flow of water, through orifices, notches, and weirs. Laws and Fluid friction. Steady flow in pipes and uniform channels. General phenomena of flow in rivers. Gauging of flow in pipes and open channels. Dynamical similarity. Impact of jets on plane. Types of turbines. General principles of design of turbines. Governing of turbines; types of pumping machinery. General principles of design of centrifugal pumps. Hydraulic cranes and hoists. Hydraulic transmission gear. General principles of hydraulic transmission of power.

## 17. ARCHITECTURE AND TOWN PLANNING

## A. ARCHITECTURE

1. *History of Architecture*—

Western : The Chief periods and styles from ancient Greek to modern.

Indian : Buddhist, Early Hindu, Muslim and Modern.

2. *Theory of Architecture*—

General principles, Elements of composition. Accommodation and circulation. Balance and proportion. Function. Harmony and Contrast Style.

3. *Architectural Construction*—

Drainage. Foundations. Materials. Walls. Roofing beams, arches and vaults-minor, elements-decoration. Plumbing, heating, ventilating, lighting, acoustics, sanitation, colour.

4. *Quantities Estimates, Contracts, Laws*—

## B. TOWN PLANNING

1. *History of Town Planning*.—Ancient, medieval and modern. Effects of social changes.

2. *Practice*.—Surveys, General Principles, sites climate, water supply drainage; transport, Zoning focal centres and their distribution. Highways, Public service and amenities. Uniformity and variety.

3. *Laws*.—Authorities-Contracts, local special Bye-laws. Acquisition of land.

## 18. THEORY OF MACHINES AND MACHINE DESIGN

**Kinematics.**—Methods of determining the relative velocities of parts in machines, by calculation and by graphic methods. Simple cases of acceleration diagrams.

**Cams.**—Harmonic, constant-velocity and constant acceleration types; displacement, velocity and acceleration of follower.



**Gears Gearing.**—Theory of shape and action of teeth; simple compound and epicyclic trains. Worm gears. Strength and durability of teeth. Engine turning moment diagrams; flywheels, governors.

**Balancing.**—Rotating parts, primary balanced of reciprocating parts, including locomotive balancing and secondary balancing of 'in line' engines.

**Vibrations.**—Body with single degree of freedom; torsional oscillations of shafts with attached masses. Whirling of shafts.

**Gyroscope.**—Theory and action. Tractive effort and performance curves for vehicles. Friction and Lubrication. Dry friction, friction circle, friction clutches screws, collar friction. Belt and rope drive.

Analysis of forces in simple mechanisms. Design of parts subjected to pure bending or pure torsion e.g. pin connections; levers; shafting, springs. Simple clutches and flexible joints in shafting.

Design of parts subjected to combined bending, torsion and direct stress, e.g., cranked members; eccentrically loaded connections (bolted and rivetted).

Design involving applications of kinematics e.g., gears and bear wheels; nut and screw mechanisms; cams; lubrication; design of bearings for given loads; use of ball and roller journal and thrust bearings; influence on design of fatigue and stress concentrations.

Design of belts, ropes, pulleys, flywheels, thin and thick pipes.

NOTE.—Candidates will be expected to show competency in making dimensioned hand sketches in good proportion. Drawing instruments may be used.

## 19. METALLURGY

Elementary consideration of the structure of metals. Crystals, grains, grain boundaries; Construction and interpretation of thermal equilibrium diagrams.

Structure of alloys; eutectics; solid solutions, intermetallic compounds—critical points in straight carbon steel.

Mechanical properties and their assessment. Standard methods of testing elementary effects of mechanical work on structure and physical properties. Fatigue. Creep. Corrosion. Plastic properties.

### Iron and Steel—

Methods of manufacture; brief outline of pig iron manufacture. The different types of pig iron and their uses; hematite, basic foundry cold-blast. Wrought iron. Steel-making regarded as a chemical process. Outline of crucible. Bessemer, openhearth and electrical furnace practice. Relationship between process and manufacture and specific properties.

Effects of common elements of carbon steel. British Standard Specification for plain carbon steels. Structure of steel ingots as cast. Effects of hot and cold deformation on the structure and mechanical properties of steel. Effects of alloy elements. The common alloy steels. High-speed steels. Classification of straight-carbon and alloy steels according to their uses.

**Cast iron.**—Malleable cast iron. Moulding Influence of design and section thickness on the structure of iron and steel castings.

Machinability of ferrous metals as affected by composition and treatment.

### Non-ferrous metals—

A study of the uses, physical, and mechanical properties of the principle non-ferrous alloys of industrial importance, with special reference to standard specifications. Hot and cold working. Alloys suitable for diecasting. Bearing Metals. Relationship between structure and duty.

Heat Treatment of Metals.

General industrial pyrometry.

Normalizing, annealing, quenching and tempering of plain carbon steels—effects of microstructure and mechanical properties. Case-hardening and nitriding. Temper-brittleness mass effects, strain-ageing.

Grain, growth and recrystallisation ageing.

Heat treatment plan and equipment.

### Technology of Working Processes—

(a) Hot stamping and forging. Variation in procedure for different materials. Effects on physical properties and structure. Flow of metal during process. Correct and incorrect fibre direction; evidence of macro-section.

(b) Press work. Suitability of materials. Drawing operations of varying depths and metal flow. Interstage annealing. Material inspection at various stages.

(c) Welding. The effect of electric arc and oxyacetylene processes on materials. Electrodes and fluxes. Structure of welds. Inspection of welds.

(d) Extrusion. Materials available. Type of work possible.

## 20. WORKSHOP TECHNOLOGY

**Material.**—The composition, physical property and engineering uses of the more common metals, their alloys such as cast iron, malleable iron, mild steel, medium carbon steel, phosphor, bronze and light alloys etc.

Tool steels, carbon and high-speed steel, and their suitability for different kinds of tools.

**Heat-Treatment.**—The relation between the heat-treatment and the physical property of plain carbon steels.

**The effect of Carbon.**—Critical temperatures. Hardening, tempering, annealing, normalizing and case hardening. Types of furnaces. Temperature measurement and Control Quenching media.

**Manufacturing Process.**—An outline of the preparatory processes for forming materials e.g. moulding and casting forgings, drop stamping, rolling and drawing metal bars. Dishing, drawing, pressing and extruding; brazing and soldering, welding by Arc, and welding and cutting by acetylene gas blow pipe flame.

**Measuring, Gauging and Inspection.**—General Principle of interchangeable production and limit gauging.

**Standards.**—Systems of limits and fits for plain and screwed work. Tolerances, limits, clearance, interference. Tolerances associated with different machining operations.

**Type of Limit Gauges.**—Advantages of adjustable gauges.

**Measuring equipment.**—Use of surface of plates, squares, Micrometers, vernier calipers and height gauges, dial gauges, rules, protractors. Conversion factor. Standard workshop gauges, their accuracies and uses.

**Cutting Tools.**—Cutting action of tools such as hand tools, lathe tools, drills reamers, milling cutters, dies, taps etc. Angles of tools for cutting different materials and purposes. Measurement of tool angles. Cutting speeds and feeds. Estimating machining times.

**Machine Tools.**—Fundamental principles in the production of machine surfaces. Principal features of construction and function of general purpose machines such as lathes, sensitive drills, radial and vertical drilling machines, shaping, slotting, planning and boring machines; plan milling machines, capstan and turret lathes, grinding and lapping machines.

**Lubrication.**—Types and uses of cutting solutions. Selection and methods of application.

**Operation Planning.**—Planning the operation layout for production and estimation of floor to floor times for machined parts.

## 21. WORKSHOP ORGANISATION AND MANAGEMENT

**Factory Organisation.**—Essentials for a sound system of works organisation. Division of managerial duties. Cost Section. Administrative Division, Technical Division. Works Manager's departments.

**Place of the Foreman in Works Organisation.**—Choice of Foreman; duties of foreman; maintenance of discipline, supervision and instructions. Attitude towards workers, care of materials, tools and equipment, analytical study of machines, men and methods; records, maintenance; bonus to foreman.

**Workers and working conditions.**—The problem of incentives, fair and adequate wages, satisfactory working conditions, fair and sympathetic treatment. Suggestions from employees: day wage system; piece work system; premium or bonus system; profit sharing scheme; what is a fair day's wage; higher wages must result in greater output. Problem of factory discipline; proper time keeping; check on absenteeism; check on loitering. Workers rules and regulations. Efficiency records. Works Committee. Duties and responsibilities of employers and labour. Labour relations.

**Stores Organisation.**—Functions of the Stores Department. Efficient handling and control of stores. Material issue requisitions; record of material issued. Bin cards; Stores record cards; Duties of Stores Accountants; materials returned from job. Advantages of good store keeping and store recording.

**Labour Organisation.**—Training of employees; recording of time and performance; time recording metal discs; mechanical time recorder; job cards, piece work cards; piece work rules; overtime slips; pass out slips; preparation of wages sheets and payment of wages for overtime; transfer from one department to another; fines; Works Committees.

**Method of remunerating Labour.**—Time and day-rate system; piece work method; combination of day-rate and piece work; bonus methods; high wage plan; collective bonus plans; profit sharing scheme; essential factors for wages as an incentive to efficiency.

**Production Organisation.**—The Works Planning Department and Progress Department; estimating department; inspection departments and duties of inspection department. Budget control; statistical reports; standardisation and mass production, internal transport; tool service, maintenance service, drawing and design service.

**Labour Welfare.**—Labour welfare activities; hours of work and adequate wages; accident, safety protections; shops cleanliness and sanitation; lighting and ventilation; factory discontent, transport to and from factory; educational facilities' canteen and mess facilities; medical aid; amenities for sports and games; works library.

#### **Maintenance of rigid discipline—**

Cost Accounting and Cost Control—Main elements of costs; material and labour expenses; item usually included in work on cost; office on cost; duties of the cost office; ascertaining of prime cost of articles; methods of record and internal check, work orders; stock orders, pending orders, charging direct materials cost; materials issue requisitions; return of materials to stores; transfer of materials from one job to another; material issue, wages etc.; detailed consideration of on cost items. Allocation and distribution of expenses; method of recording works expenses in cost and cost records.

## **22. APPLIED ELECTRONIC CIRCUITS**

Circuit principles involved in the following:—

Vacuum tube amplifiers, typical circuits for different applications; feed back; broadband amplifiers; D.C. amplifiers.

Transistor amplifiers, typical circuits; design for temperature stabilisation.

Low and high frequency oscillators. Conventional circuits, relaxation oscillators; frequency multipliers and dividers; frequency stabilization.

Pulse and sweep circuits, counting circuits.

Modulators and detectors; typical circuits for amplitude, frequency and phase modulation.

Power supply systems for electronic equipments—rectifiers, filters, voltage regulated power supplies.

Industrial electronic circuits for induction heating, welding and speed control of electric motors.

Typical circuits used in television receivers.

## **23. HYDROLOGY**

**General.**—Hydrologic cycle, scope and application of Hydrology.

**Precipitation.**—Measurement of precipitation; precipitation gauge network.

**Streamflow.**—Water stage measurement, discharge observations, stage-discharge relation, analysis of stream flow data, adjustment of stream flow data.

**Evaporation and Transpiration.**—Factors affecting evaporation, evaporation control.

**Groundwater.**—Movement of ground water, hydraulics of wells, ground water yield; replenishment and drainage.

**Hydrograph analysis.**—Components of the hydrograph, shape of the hydrograph.

**Rainfall.**—Run-off relationship, seasonal and annual relationship, extrapolation of run-off from rainfall data.

**Estimation of floods.**—Estimation of peak flows by empirical formulae, by unit hydrograph, curves and other frequency methods.

**Sedimentation.**—Elementary knowledge of bed-load and suspended load equations; principles of computing total transport rate, measurement of sediment; sedimentation of reservoirs.

## **24. GENERATION, TRANSMISSION AND DISTRIBUTION OF POWER**

### **Generation**

Sources of energy: coal, oil, gas, atomic fuel and water at high level. Availability and relative cost of generation in India.

Choice, location, type and layout of Hydroelectric power plant and steam turbine power plant. Fundamental Principles of Nuclear Power Generation. Comparative data and special features of various types of power plant. Layout and essential connections of generators, transformers, main and sectional busbars, disconnectors and circuit-breakers in generating stations and sub-stations. Construction and action of modern high voltage circuit-breakers. Parallel operation of alternators and inter-connected stations. Synchronisers. Different methods of grounding the neutral in power stations. Voltage, frequency and power factor control. Use of reactors and the calculations of short-circuit K.V.A. due to balanced and unbalanced faults. Protection of generators and transformers. Steady state stability of power system and elements of transient stability.

### **Transmission**

The construction, erection, testing and maintenance of transmission lines. Calculation of constants and voltage regulation of overhead lines. Under-ground Cables: construction; capacitance of, and electrostatic stresses in, concentric cables and h.v. bushings. Calculation of charging current in lines and cables; abnormal voltage rises, surges; corona. Different types of insulators, voltage distribution in insulator strings: Protection against voltage surges and automatic protective systems for ring mains and duplicate feeders including modern systems of protection for long lines, use of reactors and condensers. Principles of grounding/Mechanical design of overhead lines.

### **Distribution**

Calculations relating to feeder, distributor and service mains. Relative weights of copper for different types of d.c. and a.c. distribution systems. Characteristics and control of synchronous converters and rectifiers; sub-station layout. Laying, testing, maintenance and fault location in networks. Voltage and power factor adjustment methods.

## **APPENDIX II**

### **REGULATIONS RELATING TO THE PHYSICAL EXAMINATION OF CANDIDATES**

(These regulations are published for the convenience of candidates and in order to enable them to ascertain the probability of their coming up to the required physical standard. But it must be clearly understood that the Government of India reserve to themselves an absolute discretion to reject as unfit any candidate whom they may consider, on the report of the Medical Board, to be physically disqualified and that their discretion is in no respect limited by these regulations. These regulations are intended merely for the guidance of Medical Examiners and are not meant to restrict their discretion in any way. For the disabled ex-Defence Services personnel the standards will be relaxed consistent with the requirements of each Service.).

1. To be passed as fit for appointment a candidate must be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of the duties of his appointment.

2. (a) In the matter of the correlation of age, height and chest girth of candidates of Indian (including Anglo-Indian) race, it is left to Medical Board, to use whatever correlation figures are considered most suitable as a guide in the examination of the candidates. If there be any disproportion with regard to height, weight, and chest girth, the candidate should be hospitalised for investigation and X-ray of the chest taken before the candidate is declared fit or not fit by the Board.

(b) However, for certain Services the minimum standards for height and chest girth, without which candidates cannot be accepted, are as follows:—

Name of Service	Height	Chest girth	Expansion fully expanded
Railway Engineering Services, Civil, Electrical, Mechanical and Signal:—			
(a) For Male candidates	152 cm.	84 cm.	5 cm.
(b) For Female candidates	150 cm.	79 cm.	5 cm.

The minimum height prescribed is relaxable in case of candidates belonging to races such as Gorkhas, Garhwalis, Assamese, Tribals, etc., whose average height is distinctly lower.

(c) For the Military Engineer Services, Class I, a minimum expansion of 5 centimeters will be required in the matter of measurement of the chest.

3. The candidates' height will be measured as follows:—

He will remove his shoes and be placed against the standard with his feet together and the weight thrown on the heels and not on the toes or other sides of the feet. He will stand erect without rigidity and with the heels, calves, buttocks and shoulders touching the standard; the chin will be depressed to bring the vertex of the head level under the horizontal bar and the height will be recorded in centimetres and parts of a centimetre to halves.

4. The candidates chest will be measured as follows:—

He will be made to stand erect with his feet together and to raise his arms over his head. The tape will be so adjusted round the chest that its upper edge touches the inferior angles of the shoulder blades behind and lies in the same horizontal plane when the tape is taken round the chest. The arms will then be lowered to hang loosely by the side, and care will be taken that the shoulders are not thrown upwards or backwards so as to displace the tape. The candidate will then be directed to take a deep inspiration several times and the maximum expansion of the chest will be carefully noted, and the minimum and maximum will then be recorded in centimetres, 84—89, 86—93.5 etc. In recording the measurements, fractions of less than half a centimetre should not be noted.

5. The candidate will also be weighed and his weight recorded in kilograms, fractions of half a kilogram should not be noted.

6. The candidate's eye-sight will be tested in accordance with the following rules. The result of each test will be recorded:—

(i) *General*.—The candidate's eyes will be submitted to a general examination directed to the detection of any disease or abnormality. The candidate will be rejected if he suffers from any squint or morbid conditions of eyes, eye-lids or contiguous structures of such a sort as to render or are likely at future date to render him unfit for service.

(ii) *Visual Acuity*.—The examination for determining the acuteness of vision includes two tests, one for distant, the other for near vision. Each eye will be examined separately.

There shall be no limit for minimum naked eye vision but the naked eye vision of the candidates shall, however, be recorded by the Medical Board or other medical authority

in every case, as it will furnish the basic information in regard to the condition of the eye.

The standards for distant and near vision with or without glasses shall be as follows:—

	Distant vision		Near vision	
	Better eye	Worse eye	Better eye	Worse eye
1. Railway Engineering Services (Civil, Electrical, Mechanical and Signal) and other services.	6/9	6/9	Sn 0.6	Sn 0.8
2. Central Engineering Services Class I & II, Central Electrical Engineering Services, Class I and Class II, Class I, Indian Inspection Service, Class I, Indian Supply Service Class I, Central Water Engineering (Class I) Service and Central Power Engineering (Class I) Service.	6/6 or 6/9	6/12 or 6/9	Sn 0.6	Sn 0.8
3. Military Engineering Services, Class I.	6/6 (corrected with glasses)	6/18	Sn 0.8	Sn 1.0
4. Telegraph Engineering Service (Class I), Indian Railway Stores Service.	6/6 or 6/12	6/9 or 6/12	Sn 0.6	Sn 0.8

NOTE (1).—In respect of Services mentioned at 1, 2 and 3 above.

Total amount of Myopia (including the cylinder) shall not exceed —4.00D and total amount of Hypermetropia (including the cylinder) shall not exceed +4.00D in each eye.

NOTE (2).—In respect of Services mentioned at 4 above.

(a) For candidates up to the age of 20 years.—Total amount of Myopia shall not exceed —6.00D and total amount of hypermetropia shall not exceed +6.00D, in each eye.

(b) For candidates above the age of 20 years.—Total amount of Myopia shall not exceed —8.00D and total amount of hypermetropia shall not exceed +6.00D in each eye.

NOTE (3).—*Fundus Examination*.—Wherever possible fundus examination will be carried out at the discretion of the Medical Board and results recorded.

NOTE (4).—*Colour Vision*.—(i) The testing of colour vision shall be essential in respect of Services mentioned at 1, 2 and 3 above.

(ii) Colour perception should be graded into a higher and a lower grade depending upon the size of the aperture in the lantern as described in the table below:—

Grade	Higher Grade of colour perception	Lower Grade of colour perception
1. Distance between the lamp and candidates	4.9 metres	4.9 metres
2. Size of aperture	1.3 mm	13 mm
3. Time of exposure	5 sec.	5 sec.

For the Services concerned with the safety of the public, e.g. pilots, drivers, guards, etc., the higher grade of colour vision is essential but for other the lower grade of colour vision should be considered sufficient. The same standards of colour vision should be applicable in respect of all Engineering personnel in whose case colour perception is considered essential irrespective of the fact where their duties involve field work or not.

(iii) Satisfactory colour vision constitutes recognition with ease and without hesitation of signal red, signal green and white colours. The use of Ishihara's plates, shown in good light and a suitable lantern like Edrige Green's shall be considered quite dependable for testing colour vision. While either of the two tests may ordinarily be considered sufficient, in respect of the Services concerned with road, rail and air traffic, it is essential to carry out the lantern test. In doubtful cases where a candidate fails to qualify, when tested by only one of the two tests, both the tests should be employed.

NOTE (5).—*Field of vision*.—The field of vision shall be tested in respect of all Services by the confrontation method. Where such test gives unsatisfactory or doubtful results the field of vision should be determined on the perimeter.

NOTE (6).—*Night Blindness*.—Night blindness need not be tested as a routine, but only in special cases. No standard test for the testing of night blindness or dark adaptation is prescribed. The Medical Board should be given the discretion to improvise such rough tests e.g. recording of visual acuity with reduced illumination or by making the candidate recognise various objects in a darkened room after he/she has been there for 20 to 30 minutes. Candidates' own statements should not always be relied upon, but they should be given due consideration.

NOTE (7).—*Ocular conditions other than visual acuity*.—  
(a) Any organic disease or a progressive refractive error which is likely to result in lowering the visual acuity should be considered as a disqualification.

(b) *Trachoma*.—Trachoma, unless complicated, shall not ordinarily be a cause for disqualification.

(c) *Squint*.—For Services mentioned at 1, 2 and 3 above where the presence of binocular vision is essential, squint, even if the visual acuity is of the prescribed standard, should be considered as a disqualification. For other Services the presence of squint should not be considered as a disqualification if the visual acuity is of the prescribed standard.

(d) *One-eyed person*.—The employment of one-eyed individuals is not recommended.

#### 7. Blood Pressure.

The Board will use its discretion, regarding Blood Pressure. A rough method of calculating normal maximum systolic pressure is as follows:—

(i) With young subjects 15—25 years of age the average is about 100 plus the age.

(ii) With subjects over 25 years of age the general rule of 110 plus half the age seems quite satisfactory.

N.B.—As a general rule any systolic pressure over 140 mm. and diastolic over 90 mm. should be regarded as suspicious and the candidate should be hospitalised by the Board before giving their final opinion regarding the candidate's fitness or otherwise. The hospitalization report should indicate whether the rise in blood pressure is of a transient nature due to excitement etc., or whether it is due to any organic disease. In all such cases X-Ray and electrocardiographic examinations of heart and blood urea clearance test should also be done as a routine. The final decision as to the fitness or otherwise of a candidate will, however, rest with the Medical Board only.

#### Method of taking Blood Pressure

The mercury manometer type of instrument should be used as a rule. The measurement should not be taken within fifteen minutes of any exercise or excitement. Provided the patient and particularly his arm is relaxed, he may be either lying or sitting. The arm is supported comfortably at the patient's side in a more or less horizontal position. The arm should be freed from clothes to the shoulder. The cuff completely deflated, should be applied with the middle of

the rubber over the inner side of the arm, and its lower edge an inch or two above the bend of the elbow. The following turns of cloth bandage should spread evenly over the bag to avoid bulging during inflation.

The brachial artery is located by palpitation at the bend of the elbow and the stethoscope is then applied lightly and centrally over it below, but not in contact with the cuff. The cuff is inflated to about 200 m.m. Hg. and then slowly deflated. The level at which the column stands when soft successive sounds are heard represents the Systolic Pressure. When more air is allowed to escape the sounds will be heard to increase in intensity. The level at which the well-heard clear sounds change to soft muffled fading sounds represents the diastolic pressure. The measurements should be taken in a fairly brief period of time as prolonged pressure of the cuff is irritating to the patient and will vitiate the readings. Rechecking, if necessary, should be done only a few minutes after complete deflation of the cuff. (Sometimes, as the cuff is deflated sounds are heard at a certain level, they may disappear as pressure falls and reappear at a still lower level. This 'Silent Gap' may cause error in reading).

8. The urine (passed in the presence of the examiner) should be examined and the result recorded. Where a Medical Board finds sugar present in a candidate's urine by the usual chemical tests, the Board will proceed with the examination with all its other aspects and will also specially note any signs or symptoms suggestive of diabetes. If, except for the glycosuria the Board finds the candidate conforms to the standard of medical fitness required they may pass the candidate "fit subject to the Glycosuria being non-diabetic" and the Board will refer the case to a specified specialist in Medicine who has hospital and laboratory facilities at his disposal. The Medical Specialist will carry out whatever examinations, clinical and laboratory, he considers necessary including a standard blood sugar tolerance test and will submit his opinion to the Medical Board upon which the Medical Board will base its final opinion "fit" or "unfit". The candidate will not be required to appear in person before the Board on the second occasion. To exclude the effects of medication it may be necessary to retain a candidate for several days in hospital, under strict supervision.

9. The following additional points should be observed:—

- (a) that the candidate's hearing in each ear is good and that there is no sign of disease of the ear. In case it is defective the candidate should be got examined by the ear specialist. Provided that if the defect in hearing is remediable by operation or by use of a hearing aid, a candidate cannot be declared unfit on that account provided he/she has no progressive disease in the ear. This provision is not applicable in the case of Railway Services;
- (b) that his/her speech is without impediment;
- (c) that his/her teeth are in good order and that he/she is provided with dentures where necessary for effective mastication (well filled teeth will be considered as sound);
- (d) that the chest is well formed and his chest expansion sufficient; and that his heart and lungs are sound;
- (e) that there is no evidence of any abdominal disease;
- (f) that he is not ruptured;
- (g) that he does not suffer, from hydrocele, a severe degree of varicocele, varicose veins or piles;
- (h) that his limbs, hands and feet are well formed and developed and that there is free and perfect motion of all his joints;
- (i) that he does not suffer from any inveterate skin disease;
- (j) that there is no congenital malformation or defect;
- (k) that he does not bear traces of acute or chronic disease pointing to an impaired constitution;
- (l) that he bears marks of efficient vaccination; and
- (m) that he is free from communicable disease.

10. Radiographic examination of the chest should be done as a routine in all cases for detecting any abnormality of the heart and lungs which may not be apparent by ordinary physical examination.

When any defect is found it must be noted in the Certificate and the medical examiner should state his opinion whether or not it is likely to interfere with the efficient performance of the duties which will be required of the candidate.

NOTE.—Candidates are warned that there is no right of appeal from a Medical Board, special or standing, appointed to determine their fitness for the above Services. If, however, Government are satisfied on the evidence produced before them of the possibility of an error of judgment in the decision of the first Board, it is open to Government to allow an appeal to a second Board. Such evidence should be submitted within one month of the date of the communication in which the decision of the first Medical Board is communicated to the candidate, otherwise no request for an appeal to a second Medical Board will be considered.

If any medical certificate is produced by a candidate as a piece of evidence about the possibility of an error of judgment in the decision of the first Board, the certificate will not be taken into consideration unless it contains a note by the medical practitioner concerned to the effect that it has been given in full knowledge of the fact that the candidate has already been rejected as unfit for service by the Medical Board.

### Medical Board Report

The following intimation is made for the guidance of the Medical Examiner :—

1. The standard of physical fitness to be adopted should make due allowance for the age and length of service, if any, of the candidate concerned.

No person will be deemed qualified for admission to the Public Service who shall not satisfy Government or the appointing authority, as the case may be, that he has no disease, constitutional affection or bodily infirmity unfitting him, or likely to unfit him for that service.

It should be understood that the question of fitness involves the future as well as the present and that one of the main objects of medical examination is to secure continuous effective service, and in the case of candidates for permanent appointment to prevent early pension or payments in case of premature death. It is at the same time to be noted that the question is one of the likelihood of continuous effective service, and that rejection of a candidate need not be advised on account of the presence of a defect which in only a small proportion of cases is found to interfere with continuous effective service.

A lady doctor will be co-opted as a member of the Medical Board whenever a woman candidate is to be examined.

The report of the Medical Board should be treated as confidential.

**In cases where a candidate is declared unfit for appointment in the Government service, the grounds for rejection may be communicated to the candidate in broad terms without giving minute details regarding the defects pointed out by the Medical Board.**

In cases where a Medical Board considers that a minor disability disqualify a candidate for Government service can be cured by treatment (medical or surgical) a statement to that effect should be recorded by the Medical Board. There is no objection to a candidate being informed of the Board's opinion to this effect by the appointing authority and when a cure has been effected it will be open to the authority concerned to ask for another Medical Board.

In the case of candidates who are to be declared 'Temporarily Unfit' the period specified for re-examination should not ordinarily exceed six months at the maximum. On re-examination after the specified period these candidates should not be declared temporarily unfit for a further period but a final decision in regard to their fitness for appointment or otherwise should be given.

(a) *Candidate's statement and declaration*

The candidate must make the Statement required below prior to his Medical Examination and must sign the Declaration appended thereto. His attention is specially directed to the warning contained in the Note below :—

1. State your name in full (in block letters).....

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 104

2. State your age and birth place.....

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 104

3. (a) Have you ever had small-pox, intermittent or any other fever, enlargement or suppuration of glands, spitting of blood, asthma, heart disease, lung disease, fainting attacks, rheumatism, appendicitis.

(b) any other disease or accident requiring confinement to bed and medical or surgical treatment?

A .....  
 A .....  
 A .....

4. When were you last vaccinated?.....

5. Have you or any of your near relation been afflicted with consumption, scrofula, gout, asthma, fits, epilepsy, or insanity?

6. Have you suffered from any form of nervousness due to over-work or any other cause?.....

[illegible]

7. Furnish the following particulars concerning your family :—

[illegible][illegible]

8. Have you been examined by a Medical Board before ?  
 9. If answer to the above is yes, please state what Service/Services you were examined for ?  
 10. Who was the examining authority ?  
 11. When and where was the Medical Board held ?

12. Result of the Medical Board's examination, if communicated to you or if known.

I declare all the above answers to be, to the best of my belief, true and correct.

Candidate's Signature.....  
 Signed in my presence.

Signature of Chairman of the Board.

NOTE.—The candidate will be held responsible for the accuracy of the above statement. By wilfully suppressing any information he will incur the risk of losing the appointment and, if apponited, of forfeiting all claim to Superannuation Allowance or Gratuity.

(b) Report of the Medical Board on (name of candidate) Physical examination

1. General development ..... Good  
 Fair ..... Poor ..... Nutrition: Thin .....  
 Average ..... Obese ..... Height (without shoes)  
 Weight ..... Best Weight .....  
 When ? ..... Any recent change in weight .....  
 Temperature ..... Girth of Chest :  
 (1) (After full inspiration)  
 (2) (After full expiration)  
 2. Skin : Any obvious disease .....  
 3. Eyes : (1) Any disease .....  
 (2) Night blindness .....  
 (3) Defect in colour vision .....  
 (4) Field of vision .....  
 (5) Visual acuity .....

Acuity of vision	Naked eye	With glasses	Strength of glasses		
			Sph.	Cyl.	Axis
Distant Vision	R.E. L.E.				
Near Vision	R.E. L.E.				
Hypermetropia (Manifest)	R.E. L.E.				

4. Ears : Inspection ..... Hearing. Right Ear  
 Left Ear .....  
 5. Glands ..... Thyroid .....  
 6. Condition of teeth .....  
 7. Respiratory System : Does physical examination reveal anything abnormal in the respiratory organs ?  
 .....  
 .....  
 If yes, explain fully .....  
 8. Circulatory System :  
 (a) Heart : Any organic lesions ?  
 Rate ..... Standing .....  
 After hopping 25 times .....  
 Two minutes after hopping .....  
 (b) Blood Pressure : Systolic .....  
 Diastolic .....

9. Abdomen : Girth ..... Tenderness .....  
 Hernia .....  
 (a) Palpable : Liver ..... Spleen .....  
 Kidneys ..... Tumours .....  
 (b) Haemorrhoids ..... Fistula .....

10. Nervous System : Indications of nervous or mental disabilities.....

11. Loco-Motor System : Any abnormality .....

12. Genito Urinary System : Any evidence of Hydrocele, Varicocele, etc. Urine Analysis :

- (a) Physical appearance ..... (b) Sp. Gr. ....  
 (c) Albumen ..... (d) Sugar .....  
 (e) Casts ..... (f) Cells .....

13. Report of X-Ray Examination of Chest.....

14. Is there anything in the health of the candidate likely to render him unfit for the efficient discharge of his duties in the service for which he is a candidate ?

15. For which Services has the candidate been examined and found in all respects qualified for the efficient and continuous discharge of his duties and for which of them is he considered unfit ?

16. Is the candidate fit for Field Service ?

NOTE.—The Board should record their findings under one of the following three categories :

- (i) Fit.....  
 (ii) Unfit on account of.....  
 (iii) Temporarily unfit on account of.....

President.....

Member.....

Place.....

Date.....

### APPENDIX III

Brief particulars relating to the Services/Posts, to which recruitment is being made on the results of this examination.

1. Indian Railway Service of Engineers, Indian Railway Service of Electrical Engineers, Indian Railway Service of Signal Engineers, and Indian Railway Service of Mechanical Engineers.

(1) Appointments will be on probation of a period of three years during which the service of the officers will be liable to termination by three months' notice on either side. Probationary Officers will be required to undergo practical training for the first two years. Those who complete this training successfully and are otherwise considered suitable will be placed in charge of a working post, provided they have passed the prescribed departmental and other examinations. It must be noted that these examinations should, as a rule, be passed at the first chance and that save under exceptional circumstances, a second chance will not be allowed. Failure to pass any of the examinations may result in the termination of the service and will in any case involve stoppage of increments.

At the end of one year in a working post, the probationary officers will be required to pass a final examination, both practical and theoretical and will, as a rule, be confirmed if they are considered fit for appointment in all respects. In cases where the probationary period is extended for any reason, the drawal of the first and subsequent increments on their passing the departmental examinations, and on being confirmed, will be subject to the rules and orders in force from time to time.

If for any reasons not beyond his control, a probationer wishes to withdraw from training or probation, he will be liable to refund the whole cost of his training and any other moneys paid to him during the period of his probation.

NOTE (1)—The period of training and the period of probation against a working post may be modified at the discre-

tion of Government. If the period of training is extended in any case due to the training not having been completed satisfactorily, the total period of probation will be correspondingly extended.

NOTE (ii).—Probationers will also have to undergo training at the Railway Staff College, Baroda. The test in the Staff College is compulsory and a second chance in the event of failure, will not be given except in exceptional circumstances and provided the record of the Officer is such that such a relaxation may be made. Failure to pass the test may involve the termination of service and in any case the officers will not be confirmed till they pass the tests, their period of training and/or probation being extended as necessary.

NOTE (iii).—In the Indian Railway Service of Signal Engineers on Railways where there are specialised Tele-Communications posts, an additional training for a period of six months in Tele-Communications may be arranged in any particular case.

(2) (a) Probationers will not be permitted to apply for appointment elsewhere or appear for examination or selection for recruitment to other services.

(b) In cases where Probationers have already appeared at the Combined Competitive Examinations prior to their allotment to the Railway Service and qualify for appointment to services other than the Railway Services, the question of their release from Railway Service will be considered only when they are prepared to refund in cash the cost of their training and other moneys paid to them during the period of their probation before they are actually relieved.

(3) Probationers should have already passed or should pass during the period of probation an examination in Hindi in the Dev Nagri script of an approved standard. This examination may be the "PRAVEEN" Hindi Examination which is conducted by the Directorate of Education, Delhi Administration, or one of the equivalent Examinations recognised by the Central Government.

No probationary officer can be confirmed or his pay in the time scale raised to Rs. 450.00 per month unless he fulfils this requirement; and failure to do so will involve liability to termination of service. No exemption can be granted.

(4) Officers recruited under these rules :—

(a) will be eligible to pensionary benefits; and

(b) shall subscribe to the State Railway (non-contributory) Provident Fund under the Rules of that Fund, as applicable to railway servants.

(5) Pay will commence from the date of joining service. Service for increments will also count from the same date. Particulars as to pay are contained in sub-para (9).

(6) Officers recruited under these rules shall be eligible for leave in accordance with the rules for the time being in force as applicable to officers of Indian Railways. The Leave Rules are, however, liable to revision in the light of the Pay Commission's recommendations. They will not be permitted to retain the present leave Rules, if so decided by the Government.

(7) Officers will ordinarily be employed throughout their service on the Railway to which they may be posted on first appointment and will have no claim, as a matter of right, to transfer to some other Railway. But the Government reserve the right to transfer such officers in the exigencies of service, to any other Railway or project in or out of India. Officers will be liable to serve in the Indian Railway Stores Service if and when called upon to do so.

(8) The relative seniority of officers appointed under these rules will ordinarily be determined by their order of merit in the competitive examination. The Government of India, however, reserve the right of fixing seniority at their discretion in individual cases. They also reserve the right of assigning to officers appointed otherwise than by a competitive examination positions in the seniority list at their discretion.

NOTE.—If the period of training and consequently the period of probation is extended in any particular case due

to the training not having been completed satisfactorily the officer concerned is liable to lose in seniority.

(9) The following are the rates of pay admissible :—

Junior Scale : Rs. 400—400—450—30—600—35—670—EB—35—950.

Senior Scale : Rs. 700—(6th year and under)—40—40—1,100—50/2—1,250.

Junior Administrative Grade : Rs. 1,300—60—1,600.

Senior Administrative Grade :—

Indian Railway Service of Engineers and Indian Railway Service of Mechanical Engineers : Rs. 1,800—100—2,000—125—2,250.

Indian Railway Service of Electrical Engineers and Indian Railway Service of Signal Engineers : Rs. 1,800—100—2,000.

NOTE (i).—Probationary officers will start on the minimum of the junior scale and will count their service for increment from the date of joining. They will, however, be required to pass any departmental examination or examinations that may be prescribed before their pay can be raised from Rs. 400.00 to Rs. 450.00 P.M. in the time scale.

Increment from Rs. 400.00 to Rs. 450.00 will not be granted if they fail to pass the Departmental examination within the first two years of the training and probationary period. In cases where the training period has to be extended for failing to pass all the Departmental Examinations within the stipulated period, on their passing the departmental examinations after expiry of the extended period of training their pay from the date following that on which the last examination ends, will be fixed at the stage in the time scale which they would have otherwise attained but no arrears of pay would be allowed to them. In such cases the date of future increments will not be affected.

The increments from Rs. 400.00 to Rs. 450.00 and from Rs. 450.00 to Rs. 480.00 may however, be granted in advance during the period of probation, if the probationary officer passes the first and second departmental examinations respectively in accordance with extant instructions.

NOTE (ii).—In the case of persons already in Government Service, their pay on appointment as probationer will be fixed in accordance with the rules and regulations in force from time to time.

(10) The increments will be given subject to sub-para to Note (i) under sub-para (9) above for approved service only, and in accordance with the rules of the Department.

(11) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any;

Provided that such person—

(a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;

(b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(12) Promotions to the administrative grades are dependent on the occurrence of vacancies in the sanctioned establishment and are made wholly by selection, mere seniority does not confer any claim for such promotions.

(13) In all matters not specifically provided for herein, the probationary officers will be governed by the provisions of the Indian Railway Codes as amended from time to time and other orders in force issued by competent authorities.

2. *Central Engineering Service, Class I, Central Engineering Service, Class II (Permanent), Central Electrical Engineering Service, Class I and Central Electrical Engineering Service, Class II (permanent).*

(a) The selected candidates will be appointed on probation for two years. On completion of the period of probation, if they have passed the prescribed departmental examinations and are considered fit for permanent appointment, they will be confirmed in their appointments. Government may extend the period of probation of two years.



If on the expiration of the period of probation or of any extension thereof, Government are of opinion that the officer is not fit for permanent employment or if at any time during such period of probation or extension, they are satisfied that the officer will not be fit for permanent appointment on the expiration of such period or extension, they may discharge the officer or pass such order as they think fit.

Probationers will also be required to pass a test in Hindi before confirmation.

(b) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any :

Provided that such person—

(a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;

(b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(c) The following are the rates of pay admissible :

Central Engineering Service, Class I and Central Electrical Engineering Service, Class I :—

Junior Scale : Rs. 400—400—450—30—600—35—670—EB—35—950.

Senior Scale : Rs. 700—40—1,100—50/2—1,250.

Administrative (Selection) Posts :

Superintending Engineers : Rs. 1,300—60—1,600—100—1,800.

Additional Chief Engineers : Rs. 2,000 fixed (For Central Engineering Service, Class I only).

Chief Engineer : Rs. 2,250 fixed (For Central Engineering Service, Class I only).

Central Engineering Service, Class II and Central Electrical Engineering Service, Class II.

Rs. 350—25—500—30—590—EB—30—800—EB—30—830—35—900.

3. Indian Inspection Service and Indian Supply Service :—

(a) Selected candidates will be appointed on probation for a period of two years. On completion of the period of probation, the officers, if considered fit for permanent appointment will be confirmed in their appointments subject to availability of permanent posts. The Government may extend the period of two years of probation.

If on the expiration of the period of probation or any extension thereof, the Government are of the opinion that an officer is not fit for permanent employment, or if at any time during such period of probation or extension thereof, they are satisfied that any officer will not be fit for permanent appointment on the expiration of such period or extension they may discharge the officer or pass such order as they think fit.

The officers will also be required to pass a prescribed test in Hindi before confirmation.

(b) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any :—

Provided that such person—

(a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;

(b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(c) The following are the rates of pay admissible.

	Rs.
Grade III—Junior Class I Scale	400—400—450—30—600—35—670—EB—35—950
Grade II—Senior Class I Scale	700—40—1,100—50/2—1,250
Grade I—Administrative Selection Posts	1,300—60—1,600—100—1,800 (With a Selection Grade of Rs. 1,600—100—1,800)
Super time-scale posts,	(a) 1,800—100—2,000 (b) 2,250 (For Indian Supply Service only)

4. Military Engineer Services, Class I :—

(a) The selected candidates will be appointed on probation for a period of two years. A probationer during his probationary period may be required to pass such departmental and language tests as Government may prescribe. If, in the opinion of Government, the work or conduct of an officer on probation is unsatisfactory or shows that he is unlikely to become efficient or if the probationer fails to pass the prescribed tests during the period, Government may discharge him. On the conclusion of the period of probation, Government may confirm the officer in his appointment or if his work or conduct has in the opinion of Government been unsatisfactory, Government may either discharge him or extend the period of probation for such further periods as Government may consider fit.

Probationers will also be required to pass a test in Hindi before confirmation.

(b) (i) The selected candidates shall, if so required, be liable to serve as Commissioned officers in the Armed Forces for a period of not less than four years including the period spent on training if any, provided that such a candidate (i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment; and (ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years:

(ii) The candidate shall also be subject to Civilians in Defence Services (Field Service Liability) Rules of 1957 published under S.R.O. No. 92 dated 9th March, 1957. They will be medically examined in accordance with the medical standards laid down therein.

(c) The following are the rates of pay admissible :—

Assistant Executive Engineer	400—400—450—30—
Assistant Surveyor of Works	600—35—670—
Assistant Technical Examiner	EB—35—950
Executive Engineer	700—40—1,100—
Surveyor of Works	50/2—1,250
Technical Examiner	
Superintending Engineer	1,300—60—1,600—
Superintending Surveyor of Works	100—1,800
Superintending Technical Examiner	
Chief Technical Examiner	Under Consideration
Chief Surveyor of Works	1,800—100—2,000

5. Telegraph Engineering Services, Class I :—

(a) Appointments will be made on probation for a period of two years. If, in the opinion of Government, the work or conduct of an officer on probation is unsatisfactory, or shows that he is unlikely to become efficient, Government may discharge him forthwith. On the conclusion of his period of probation, Government may confirm the officer in his appointment if permanent vacancies are available or if his work or conduct has in the opinion of the Government been unsatisfactory, Government may either discharge him from the service or may extend his period of probation for such further period as the Government may think fit.

Officers will be required to pass any departmental examination or examinations that may be prescribed during the period of probation. They will also be required to pass a test in Hindi before confirmation.



(b) Officers will also be required to pass professional and language Tests.

(c) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any:—

Provided that such person—

(a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;

(b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(d) The following are the rates of pay admissible:—

Junior Scale: Rs. 400—400—450—30—600—35—670—EB—35—950.

Senior Scale: Rs. 700—40—1,100—50/2—1,250.

Junior Administrative Grade: Rs. 1,300—60—1,600.

Senior Administrative Grade: Rs. 1,800—100—2,000—125—2,250.

Members (P & T Board): Rs. 2,250.

#### 6. Central Water Engineering (Class I) Service and Central Power Engineering (Class I) Service.

(i) Persons recruited to the posts of Assistant Director/Assistant Executive Engineer/Research Officer in the Central Water and Power Commission shall be on probation for a period of two years.

Provided that the Government may, where necessary, extend the said period of two years for a further period not exceeding one year.

If on the expiration of the period of probation referred to above or any extension thereof, as the case may be, the Government are of the opinion that a candidate is not fit for permanent appointment or if at any time during such period of probation or extension, they are satisfied that he will not be fit for permanent appointment on the expiration of such period of probation or extension, they may discharge or revert him to his substantive post or pass such order as they think fit.

During the period of probation, the candidates may be required by the Government to undergo such course of training and instructions and to pass such examinations and tests as it may think fit, as a condition to satisfactory completion of probation.

(ii) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any:

Provided that such person:—

(a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;

(b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(iii) The officers appointed to the posts of Assistant Director/Assistant Executive Engineer/Research Officer can look forward to promotion to higher grades of Deputy Director/Executive Engineer, Superintending Engineer/Director (Ordinary Grade), Director/Superintending Engineer (Selection Grade) and Chief Engineer, after fulfilling the prescribed conditions.

The scales of pay for Class I engineering posts in Central Water and Power Commission are as follows:—

#### (Civil and Mechanical Posts in the Water Wing)

1. Assistant Director/Assistant Executive Engineer/Research Officer	400—400—450—30—600—35—670—EB—35—950
2. Deputy Director/Executive Engineer	700—40—1,100—50/2—1,250
3. Superintending Engineer/Director (Ordinary Grade)	1,300—60—1,600—100—1,800
4. Director Selection Grade/Superintending Engineer (Selection Grade)	1,800—100—2,000
5. Chief Engineer	2,000 (fixed)

#### (Electrical and Mechanical Posts in the Power Wing)

1. Assistant Director/Assistant Executive Engineer/Research Officer	400—400—450—30—600—35—670—EB—35—950
2. Deputy Director/Executive Engineer	700—40—1,100—50/2—1,250
3. Superintending Engineer/Director (Ordinary Grade)	1,300—60—1,600—100—1,800
4. Director (Selection Grade)	1,800—100—2,000
5. Deputy Chief Engineer	1,800—100—2,000
6. Chief Engineer	2,000 (fixed)

#### 7. Posts in the Geological Survey of India.

Persons recruited to the posts of Assistant Drilling Engineer/Mechanical Engineer (Junior) (Class I posts) and Assistant Mechanical Engineer (Class II posts) in the Geological Survey of India in a temporary capacity will be on probation for a period of two years. Retention in service for a further period over two years will depend on assessment of their work during the period of probation. This period may be extended at the discretion of the Government. They will receive pay in the time-scale of Rs. 400—400—450—30—600—35—670—EB—35—950 and Rs. 350—25—500—30—590—EB—30—800, respectively. On completion of their period of probation satisfactorily, if they are considered fit for permanent appointment, they will be considered for confirmation according to rules subject to the availability of substantive vacancies.

The persons appointed to the posts of Assistant Drilling Engineer/Mechanical Engineer (Junior) and Assistant Mechanical Engineer in the Geological Survey of India, if so required, will be liable to serve in any Defence Service or post connected with the Defence of India for a period of not less than four years including the period of training, if any:

Provided that such a person—

(i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment as Assistant Drilling Engineer/Mechanical Engineer (Junior) or Assistant Mechanical Engineer, Geological Survey of India, and

(ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

The following is the field of promotion open to those found fit according to the rules and instructions on the subjects:—

#### A—For Assistant Drilling Engineer (Class I)

(i) Deputy Drilling Engineer: Rs. 700—40—1,100—50/2—1,250.

(ii) Drilling Engineer: Rs. 1,300—60—1,600.

(iii) Additional Chief Drilling Engineer: Rs. 1,600—100—1,800.

(iv) Chief Drilling Engineer: Rs. 1,600—100—2,000.

#### B—For Mechanical Engineer (Junior) (Class I)

##### Assistant Mechanical Engineer—(Class II)

(i) Mechanical Engineer (Junior): Rs. 400—400—450—30—600—35—670—EB—35—950.

(ii) Mechanical Engineer (Senior): Rs. 700—40—1,100—50/2—1,250.

(iii) Superintendent Mechanical Engineer: Rs. 1,300—60—1,600.

The officers recruited in the Geological Survey of India will be required to serve anywhere in India or outside the country.

8. *Post of Assistant Manager, Class I in the P. & T. Workshops Organisation.*

Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any :

Provided that such person :—

- (a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;
- (b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

The scales of pay for engineering posts in the P. & T. Workshops Organisation are as follows :—

1. Assistant Engineer : Rs. 350—25—500—30—590—EB—30—800—EB—30—830—35—900.
2. Assistant Manager : Rs. 400—400—450—30—600—35—670—EB—35—950.
3. Assistant General Manager/Senior Engineer : Rs. 700—40—1,100—50/2—1,250.

4. Deputy General Manager/Manager, Workshops : Rs. 1,300—60—1,600.

5. General Manager, P. & T. Workshops : Rs. 1,800—100—2,000.

9. *Other permanent/temporary posts carrying generally the following Scales of pay :—*

	Rs.
(i)	400—950
(ii)	350—900

Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any :

Provided that such person—

- (a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;
- (b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.